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OF

# MEDICAL SCIENCE.

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## PART I.

## ORIGINAL COMMUNICATIONS.

ART. XIX.—*Laryngeal Ulceration in the Advanced Stage of Typhoid Fever.*[a] By J. MAGEE FINNY, M.D. Dubl.; Past Pres., Royal College of Physicians, Ireland; King's Prof. Practice of Medicine in the School of Physic; Physician to Sir Patrick Dun's Hospital.

SIR GEORGE DUFFEY, M.D., Pres. R.C.P.I., read a valuable and exhaustive paper on the subject of laryngeal complication in typhoid fever[b] before the Royal Academy of Medicine, on Jan. 28, 1898, in which he gave the details of a case under his care, which had ended fatally on the forty-fourth day of his illness and the seventh day from the accession of laryngeal symptoms.

In the discussion which followed the reading of his paper, I made a short reference, from memory, to a similar case which had occurred under my care at Sir Patrick Dun's Hospital. My recollection of many of the details was at fault, as two years had elapsed since the case had been under treatment, and I had not looked up the notes of it in the meantime.

I now present an abstract of the case, taken from the

[a] Read before the Medical Section of the Royal Academy of Medicine in Ireland on Friday, April 15, 1898.

[b] Laryngeal Necrosis in Typhoid Fever. Dublin Journal of Medical Science. Third Series. No. CCCXV., p. 185.

Hospital Records by Dr. Littledale, House Surgeon, as I believe it will prove an instructive additional contribution to the literature of this rare and dangerous complication of typhoid fever.

Case.—A. J., a Norwegian sailor, aged about twenty, was admitted to hospital on November 4th, 1895. He could give no history of his sickness, being unable to speak English, but complained chiefly of a pain in the lower part of his abdomen. He also suffered from cough, and expectorated some thin, viscid sputum with ropy masses of mucus. The tongue were thickly coated; bronchitic râles all over the chest were the only abnormal sign. Later the motions were of a typical typhoid nature, and the spleen was found to be enlarged. The throat also looked very sore.

From this time on the fever, although somewhat severe, ran an uneventful course, the temperature almost touching normal in 21 days after admission, and probably the 25th day of his fever. Towards the end of the time, however, the patient became decidedly hoarse, and complained of laryngeal pain.

On the night of the 25th November, about the 24th day of the disease, the huskiness increased to almost aphonia, and the patient was attacked by spasm of the glottis and dyspnœa, which was temporarily relieved by hot applications. A consultation was held on his case on the following morning, and it was decided that tracheotomy was not then advisable, but that everything should be kept in readiness in case of necessity.

This necessity occurred on December 4th, when the dyspnœa was so great that my colleague, Dr. Taylor, decided to perform tracheotomy at once; indeed, so urgent were the symptoms that in spite of great haste the patient's breathing stopped while he was on the table, and artificial respiration had to be resorted to.

For two days the fever was very high, but dropped below normal on the third day. After this the patient had a good recovery from the fever, but the tube could not be permanently removed, attempts being made on several occasions, but without success, as the tube had generally to be replaced within a few hours.

On January 3rd, 1896, Dr. R. H. Woods examined the larynx and found a yellow ulcerating patch between the true and false vocal cords on the left side; and again on March 8th, when he advised dilatation of the larynx.

An attempt was made on March 11th to do this by Dr. Taylor, which was, however, unsuccessful, as the patient became almost asphyxiated in the attempt, and the use of the tracheotomy tube

had to be continued. Another attempt was also made later on to cause the respiration to return to its normal path by gradually closing the opening, but also without success.

When the patient left the hospital to return to his own country, on July 9th, 1896, he was in excellent health, but still continued the use of the tracheotomy tube.

The principal points of scientific and clinical interest illustrated by the foregoing case are:—

1. The complication occurred in a young man, aged twenty, thereby conforming, as regards this ætiological factor, with the majority of published cases.

2. The pharynx and larynx as well as the mucous membrane of the bronchial tubes were inflamed from an early stage of the fever, as evidenced by cough and expectoration of ropy mucus; and when the bronchial catarrh subsided the laryngeal complication became more pronounced.

3. The laryngeal symptoms became urgent after the primary fever had abated.

4. Operative interference became suddenly imperative, ten days later: suggesting, as a hint for future practice in similar cases, the advisableness of (*a*) having every arrangement made for immediate tracheotomy when the necessity should arise; or, (*b*) having the tracheal tube inserted before the urgency arose, as soon as the symptoms and signs clearly demonstrate the presence of this grave complication.

5. The presence of an ulcer posteriorly between the vocal cords which ended in cicatricial stenosis.

6. The absolute nature of the closure, so that the tracheal tube could never be dispensed with afterwards, and the failure to use intubation or dilatation of the constricted larynx.

ART. XX.—*Abdominal Surgery: being Cases of Laparotomy for the Relief of Intestinal Obstruction.* By J. S. M'ARDLE, F.R.C.S.I.; Surgeon to St. Vincent's Hospital, Dublin.

RELAPSING APPENDICITIS.

CASE I.—J. O'N., aged thirteen years, was brought to me by Sir Acheson M'Cullagh, of Londonderry, who had made the diagnosis, having attended the lad through two attacks of a very severe nature. Recognising the danger of allowing the disease to take its course, he wisely recommended laparotomy.

When I examined this patient I found the cæcum much distended, and midway between the anterior superior spine of the ilium and the umbilicus there was a firm nodule the size of a Tangerine orange. It was tender on pressure and very slightly movable.

*Operation.*—Being satisfied (from the history, and the site and character of the nodule) that we had to deal with a greatly thickened appendix, I made an incision in the right semilunar line four inches in length. On exposing the ileo-cæcal area no appendix showed, but the nodule could be felt through the cæcum, which I now brought through the incision. On the back of this viscus, extending upwards and outwards, I found the appendix. It was $3\frac{1}{2}$ inches in length, had a bulbous end, which was embedded in much inflammatory exudation; here and there shreds of lymph were adherent over the back of the bowel and around the mesentery of the appendix, which was thick and very vascular. I applied a chain suture along the mesentery and cut it; then I freed the bulbous end by cutting a portion of the wall of the bowel with it (all this time gauze sponges were packed into the wound surrounding the field of operation). A line of Lembert's suture closed the cæcal wound, and now dissecting two lateral flaps of the sero-muscular wall of the root of the appendix, I snipped it off close to its origin. Inversion of the flaps and fixation by top stitching secured the mouth. The abdomen was closed without flushing.

On the eighth day the sutures were removed, and, notwithstanding the imperfect health in which the boy was at the time of operation, recovery was rapid and complete.

CASE II.—A. B., aged nineteen, was sent to me by Dr. Wilson, of Castleblayney, with a history of repeated attacks of abdominal pain, obstruction of the bowels attended by high temperature, and

distressing dry retchings. The last of these attacks had occurred seven weeks previous to his admission to St. Vincent's Hospital. On examination I found him pale and emaciated, with furred tongue, quick pulse, and subnormal temperature. He had been living on fluid diet, fearing to bring on one of these attacks which he so much dreaded.

I examined him under ether, and found that Dr. Wilson's diagnosis was correct. An ovoid swelling could be felt at the edge of the true pelvis. This part was tender on pressure, and this was the situation in which he had always experienced most distress.

*Operation.*—I cut down in the right semilunar line, behind which the great omentum was massed and adherent. This I separated from the abdominal wall, and, getting under its right border, I reached the appendix, which I found as depicted in Fig. 1. The slightest touch caused extraordinary contortions of

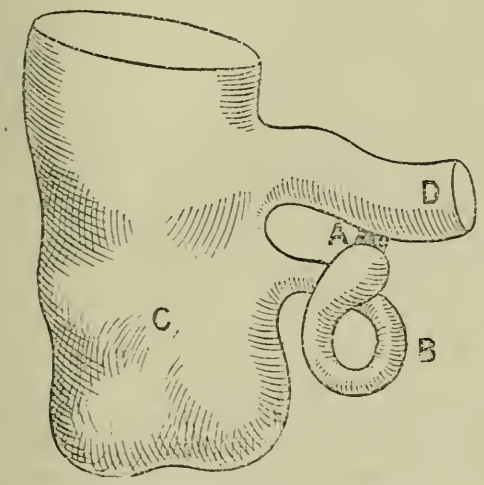


Fig. 1.

the appendix, followed by marked engorgement of the mesentery. Contractions of the muscular wall of the appendix much exaggerated the C-shape, and pulled upon the ileum, throwing it into spasm. At a point where the tip of the deformed and diseased structure was fixed by a firm adhesion, shown at A, Fig. 1, a cheesy mass was found between the layers of the mesentery along the concave border of the appendix. Between this mass and the cæcum I applied a chain suture. I double ligatured the adhesion

to the ileum and cut it. After section of the mesentery, I dealt with the root of the appendix, as in Case I., and closed the abdominal wound.

The course of this case was uneventful; recovery was rapid and complete.

### PERFORATING APPENDICULAR ABSCESS.

Case III.—E. H., aged twenty-one years, was carried into St. Vincent's Hospital on the night of March 16th, 1897, in a state of profound collapse. She was sent to me by Dr. M'Kenna, of the Kingstown Hospital. She had suffered from intestinal obstruction for some days, but on the day she came to me she suddenly became much worse; had stercoraceous vomiting, much abdominal pain and distension, and profound prostration. She was on admission semi-unconscious, cyanosed; her respirations were hurried and very shallow; pulse, 130. Seeing this patient in such a low condition I had her at once prepared for operation. On examination I found the abdomen very tense and glossy, with a bluish tinge, which did not disappear on pressure, showing that there was stasis in the abdominal vessels. There was a dull area extending from two fingers' breadth below the umbilicus to the pubes, being most marked on the right side, where fluctuation was to be felt. On examining the rectum I found coils of small intestine crushed into the pelvis: and bimanual examination proved the presence of fluid surrounding these coils. The history of this case pointed to perforation of an appendicular abscess as the cause of the trouble.

*Operation.*—Owing to the insensibility of the patient a very slight narcosis was necessary. A four-inch incision in the linea alba exposed a thickened and adherent omentum, through which I was obliged to cut. Great fœtor was now noticed, and on passing my finger between some adherent coils of small intestine a great quantity of exceedingly offensive sero-purulent fluid escaped. I now flushed out the pelvis with sterilised water (as hot as could be borne by the hand) until the fluid returned clear. Exploration showed the small intestines to be matted together surrounding a great cavity, from the walls of which shreds of exudation material came away on gauze sponges with which the cavity was packed. The appendix was adherent along the iliac vessels, being overlapped by a dilated cæcum, to which it was also adherent.

Removal of the appendix would be attended in this case with many dangers:—1st. The low vitality of the patient would not

permit of prolonged operation; 2nd. Its relation to the iliac vessels rendered rapid removal impossible; 3rd. The dissection necessary, owing to extensive adhesions, would expose the back of the cæcum and the pelvic wall, leaving a large patch devoid of peritoneum.

Leaving the appendix untouched, I placed a glass drainage-tube in Douglas's pouch and packed the wound with iodoform gauze. A few silk-worm gut sutures closed the upper part of the abdominal wound, completing a rapid operation which left the patient much less distressed. A large gauze dressing was applied, and the patient removed to bed.

For some days there was copious discharge of sero-purulent material, necessitating frequent changes of the dressings. My house-surgeon, Dr. Kennedy, 108 Francis-street, Dublin, to whose attention this patient owes her recovery, washed out the abdomen frequently with sterilised water. Removing the glass tube on the fifth day he substituted a gauze drain. On the eighth day this drain was dispensed with, and on the sixteenth day the discharge ceased, and the patient left St. Vincent's on the twentieth day after admission looking and feeling quite well.

## GALL-STONES CAUSING INTESTINAL TROUBLE, AND SIMULATING FLOATING KIDNEY.

Case IV.—Mrs. H., aged forty-three. I saw this case in consultation with Dr. Horne at Merrion-square. *History:*—For some years she had suffered from constipation, with occasional attacks of retching. Medicines gave her very little relief, and of late she experienced much pain across the upper abdomen and a dragging in the right costo-lumbar region. Her usual attendant suspected she had a floating kidney, and on examination he found a mass in front of the right loin and reaching inwards to the umbilicus. She now came under Dr. Horne's care as she had some uterine trouble which he cured. Wishing to have the abdominal distress relieved she consulted him about this tumour, which he asked me to examine. In consultation with him and without an anæsthetic I made a bimanual examination, and ascertained that the right kidney was in place, and in front of it, and extending downwards and inwards, there was a semi-elastic mass, ovoid in outline and freely movable, laterally. On pressure this mass slipped suddenly upwards under the right costal arch, and it moved up and down with the respiratory acts. We explained to the patient that medicines could not be of any avail, and that in operation alone was there any chance of success.

*Operation.*—I made a vertical incision, five inches in length, from the 9th costal cartilage, and, on entering the abdomen, came immediately on the tumour, which proved to be a greatly distended gall-bladder. Before opening it I freed it all round from the omentum and colon to which it was fixed by recent adhesion. I then made a digital examination of the common bile duct, which I found normal, but in the cystic duct I found a large stone. On grasping the gall-bladder between my fingers I felt many large stones.

Packing the wound all round the gall-bladder with gauze sponges, and holding the fundus of that viscus outside the wound with fine vulsella, I made a free vertical incision into it, and gave exit to a great collection of muco-pus and many dark-coloured stones. Flushing with sterilised water removed the remainder of those collected in the gall-bladder; but the one in the cystic duct I was obliged to crush with a strong forceps, as no justifiable pressure outside the duct seemed to influence its shape. The gall-bladder was now fixed by a few silkworm-gut sutures in the upper angle of the wound, and the remainder of the incision closed by deep and superficial sutures of silver wire; a gauze drain was left in for some days, bile being freely discharged. Ten days after the operation the sutures were removed, and ten days later she kindly came to the Surgical Section of the Royal Academy of Medicine as one of a group of cases to illustrate the rapidity and soundness of healing of wounds in the semilunar line.

The stones in this case numbered 97, many of them being very large and none of them bearing facets.

### HYDATID CYST SIMULATING DISTENDED GALL-BLADDER AND CAUSING OBSTRUCTION.

Case V.—Miss C. B., aged twenty-four, came under my care suffering from severe pain in the abdomen and chiefly in the right lumbar region. She had had severe vomiting and had become greatly emaciated. The bowels could not be got to act properly although flatus passed occasionally. On examination I found a tumour occupying the right hypochondriac region and extending downwards to the anterior superior spine, it was tender on pressure, dull on percussion, and could be moved upwards and laterally with freedom, but could not be drawn downwards below inter-spinous line. It moved up and down with the respiratory act. An indistinct fluctuation could be detected, and, although the tumour felt ovoid, the dulness was encroached upon below and on

the left side by an irregular area of resonance. Owing to the ease with which the tumour could be felt through the quadratus lumborum it was thought to be of renal origin, but bimanual examination under ether enabled me to discover the kidney, normal in position and size, lying well behind and on a higher level than the tumour. There had been no jaundice, no history of recurring colicky pains, and so gall-stone trouble was unlikely. I decided that it was a hydatid connected with the under surface of the liver, or a distended gall-bladder.

*Operation.*—Assisted by Mr. Tobin and Dr. Alfred Smith, I opened the abdomen in the right semilunar line. I found the omentum adherent to the abdominal wall and with some difficulty detached it, to find that it was closely connected behind to the tumour. So firm were the adhesions that I was obliged to resect a

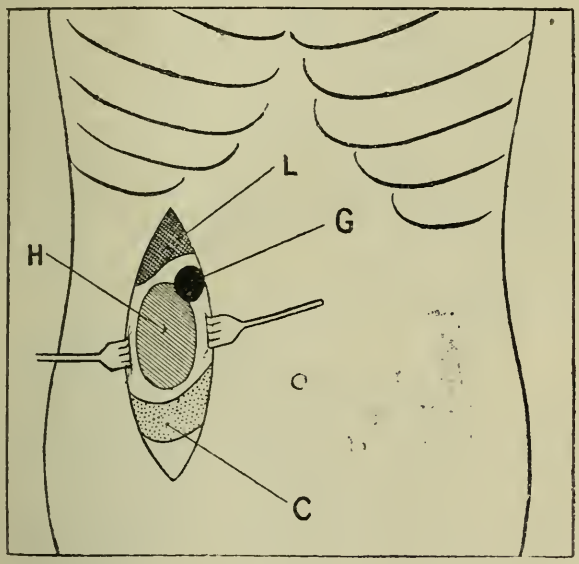


Fig. 2.

portion of the omentum. On turning down the stump of the omentum the tumour was exposed. It proved to be a hydatid as large as a fair sized melon and somewhat like it in shape. It was surrounded, as in Fig. 2, by the colon, which was firmly adherent to its lower and left surface. The gall-bladder presented, as at G, Fig. 2, green and distended, and the tumour could be traced to

the fissure of the gall-bladder, where it compressed the cystic duct and caused partial obstruction, leading to the distension observed.

The cause of intestinal trouble was very apparent when the colon (C, Fig. 2) was exposed. I found it dark purple in colour and firmly adherent to the lower and left lateral aspects of the tumour. The adhesions were very vascular, and during separation rather free bleeding occurred. Most of this was controlled by packing with very warm gauze sponges, but at several points double ligatures were necessary before section of unusually firm attachments could be carried out. The most difficult part of the operation was the separation from the liver and gall-bladder, and one very large vessel—a branch extending from the cystic—was with difficulty secured; at the root of the tumour many vessels required ligature. When the tumour was removed a great cavity existed below the liver, into which the colon bulged. This cavity was tamponed with iodoform gauze, and the greater part of the abdominal wound closed with silk-worm gut sutures.

Owing to the low vitality and the protracted nature of the operation the patient did not rally rapidly, but on the second day after the procedure she seemed nothing the worse of its gravity. For some days there was rather free sero-sanguineous discharge. This ceased after removal of the gauze drain, and on the thirteenth day, when the sutures were removed, the wound was soundly healed.

From this out recovery was rapid, and since there has been no vomiting or intestinal distress of any kind.

### INTUSSUSCEPTION.

Case VI.—Miss M., aged twenty-eight years, was sent to me by Drs. White and James, of Kilkenny. For some days she had suffered from severe paroxysmal pain in the lower abdomen, complaining that she felt like lead in the intervals of pain. The bowels had not acted although enemata had been administered. On making a rectal examination Dr. White discovered a mass of mucous membrane, projecting into the lumen of that tube, and feeling that nothing short of a serious operation would give relief, he sent the patient to the private hospital, 97 Lower Leeson-street, under my care on April 8th, 1898.

Rectal examination confirmed Dr. White's view, and I was satisfied that there was an invagination of the sigmoid into the rectum. There was only one central opening in the projecting mass, which reached within half a finger's length of the anus.

There was dulness over the supra-pubic region, and here the abdomen was doughy. Vomiting of stercoraceous matter was persistent, and the fœtor was intolerable. Just before examination there was a discharge of mucus and blood from the bowel, but no fæcal matter. The patient was cyanosed, had a quick, small pulse and subnormal temperature, and although under the influence of morphia she complained much of persistent pain over the lower abdomen of a dragging character, and constantly-recurring attacks of acute pain in the left side low down.

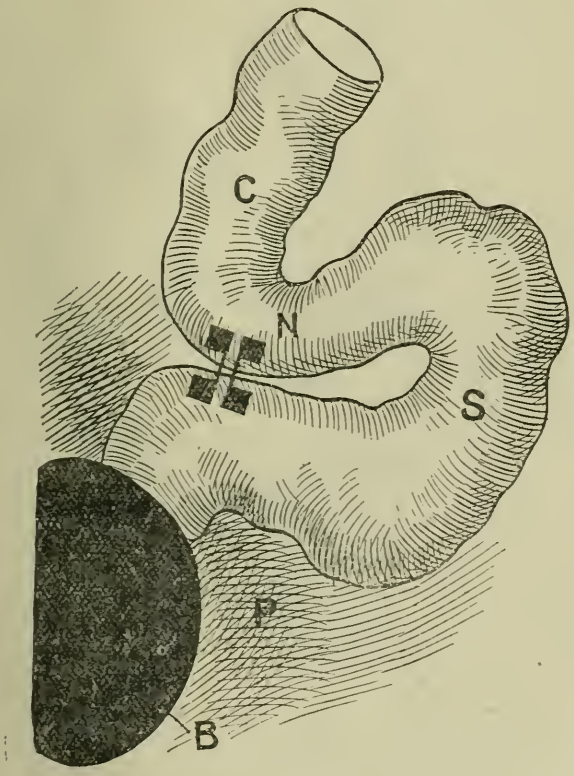


Fig. 3.

I determined on operating at once, and assisted by Drs. Horne and Fagan, and Mr. Reginald White, I made an incision in the middle line from the umbilicus to within an inch of the pubes. I examined the ileo-cæcal area, then followed the large intestine round

until I reached the seat of obstruction, which I found to be situated at the lower end of the descending colon. The sigmoid was absent from the iliac fossa, but on passing my hand well down into the pelvis I found, as I suspected, that it had become invaginated into the rectum. Pressure from below, combined with gentle traction on the descending colon, released a loop about nine inches in length, representing the greater part of the sigmoid. This portion of the

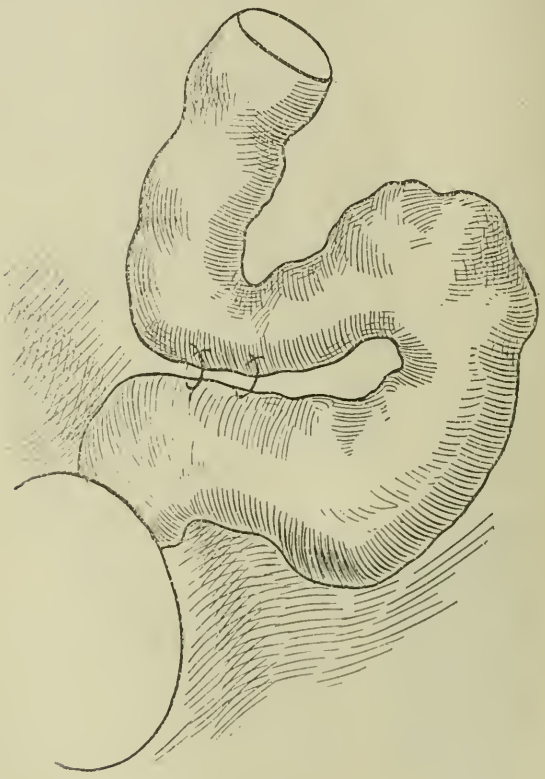

Fig. 4.

bowel was very dark in colour, and covered with shreds of recent adhesions. It was œdematous, and its mesentery was thickened, grayish-white in colour, and here and there along its attachment to the bowel the serous layers were separated by sero-sanguineous effusions.

The great thickness of the bowel-wall determined me in the

selection of the operation to be now carried out. Fixation of the loop in the left iliac fossa would prevent re-invagination, but owing to the enormous thickening of the wall of the bowel the lumen was much narrowed, and continued obstruction was likely. Again, the vitality of this portion of intestine was, from long strangulation, much impaired, and its distension by passing fæcal masses and gas might lead to perforation. I therefore determined on isolating the affected portion, and so selecting a healthy portion of the gut above and below, I inserted a Murphy's button, as in Fig. 3. The internal coats of the bowel were so œdematous that I thought it well to support the button by two Lembert's sutures, applied as shown in Fig. 4.

The temperature in this case never went above 100°, and recovery was remarkably rapid considering the low vitality of the patient on the night of operation.

Irrigation of all the exposed intestines with sterile water at a temperature of 106° soon re-established the circulation, as evidenced by the returning colour and beginning peristalsis. Soon gas commenced to pass through the button, and, satisfied that we had averted serious mischief in this case, I closed the abdominal wound with stout silkworm-gut.

Case VII.—Mrs. M'M., aged fifty-one years, was sent to me by Dr. Frost, of Newmarket-on-Fergus, with a carefully-compiled memo. of the course of the trouble for some time, and outlining accurately the cause of severe intestinal obstruction, which only yielded to treatment by copious enemata. On examination I found an ovoid tumour, projecting downwards from under the right costal arch, reaching as low as the iliac crest. It was semi-elastic, nodular, and on percussion dull. It could be moved laterally, could not be drawn downwards, but pressure from below and in front caused it to slip with a jerk upwards and to the right under the costal arch. All the symptoms of gall-stones were present, but in addition there was a history of persistent and dangerous intestinal obstruction.

*Operation.*—On March 15th, 1898, assisted by Mr. Reginald White, I made a five-inch incision in the right semilunar line, from the edge of the ribs. On getting through the abdominal wall I found the omentum turned upwards over the tumour, and adhering to the edge of the liver. On separating the adhesions and pushing down the omentum, I came upon the gall-bladder, dark gray in colour and very tense. It was adherent all round to the colon, which it indented as in Fig. 5. This condition accounted fully for the intestinal obstruction noted by Dr. Frost. Free

incision of the fundus of the gall-bladder gave exit to a great quantity of muco-pus scarcely stained with bile, then a few calculi, held together by tenacious muco-purulent material, came away.

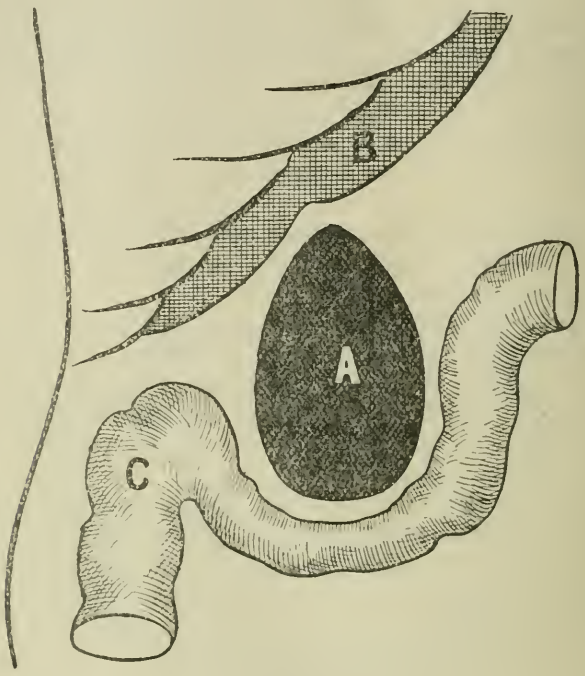


Fig. 5.

Flushing with sterilised water brought away calculi to the number of 104. One large stone was fixed in a pouch at the commencement of the cystic duct; this was crushed with a forceps, and removed by a blunt flushing scoop. The gall-bladder was fixed to the skin, the peritoneum sutured round its lower border and throughout the length of the wound with fine silk. The other layers of the abdomen were sutured with stout silkworm-gut.

For a time I had some anxiety about this case, as first the right, and afterwards the left leg swelled up, the veins in the groins being very much distended. This condition was relieved by purgation with salines, and recovery was then rapid and complete.

ART. XXI. — *Clinical Report of the Rotunda Lying-in Hospital for Three Years, from Nov. 1, 1893, to Oct. 31, 1896.* By WILLIAM J. SMYLY, M.D., F.R.C.P.I.; Master, Rotunda Lying-in Hospital; H. WILSON, L.R.C.S.I.; and HENRY JELLETT, M.D., M.Ch., Assistants.

(*Continued from page 304.*)

POST-PARTUM HÆMORRHAGE.

There were 49 cases of post-partum hæmorrhage, 28 of which were moderate and 21 severe; 41 were due to uterine inertia, 7 to lacerations of the soft parts, and 1 to a combination of both causes. Of the atonic cases, 10 were controlled by external manipulation and ergot, 6 by the hot douche; in 24 the hand was introduced to remove the placenta, membranes, or clots, 3 were plugged, including a case of uterine inertia with a deep cervical laceration, 2 were infused with saline solution.

M. C., delivered 15th July, 1894. Considerable post-partum hæmorrhage; hand introduced and partially adherent placenta removed, uterus continuing relaxed and a deep cervical laceration being discovered, uterus and cervix were plugged with gauze.

N. F., delivered 9th Feb., 1895. A considerable hæmorrhage during third stage. Hæmorrhage ceased after expulsion of the placenta, but the patient was greatly collapsed, with a thready pulse, 140 per minute; as she did not improve with the ordinary methods, two quarts of saline solution were infused with marked benefit. She left the hospital on the ninth day.

H. S., delivered 22nd Jan., 1895, at 2 30 a.m., of a seven months' child. There was some hæmorrhage after the birth which was easily controlled, but at 3 30 a.m. flooding was noticed again; a large quantity of blood and clots was expressed from the uterus, with a piece of membrane. Hot douching being found insufficient, the uterus was plugged with gauze and the vagina with moist cotton wadding. The patient was greatly collapsed and could retain nothing in her stomach. As her condition showed no improvement towards evening she was infused with saline solution; the pulse, which could not be counted before, now fell to 126. The plugs were removed at 12 30 p.m., and there was no further hæmorrhage. On the fourth evening her temperature rose to 104°

and the uterus was douched with creolin. The temperature continued irregular for four days, but steadily improved after that until the twelfth day, when it became normal and remained so until her discharge five days later.

M. K., delivered 17th May, 1895. The membranes were adherent and had to be removed by hand. The uterus was infested by a number of multi-nodular myomata. Hæmorrhage continuing in spite of hot douching the uterus and vagina were plugged with gauze as in the former cases. She had an irregular temperature for three weeks, but only once as high as 101°, and she ultimately left the hospital in good health.

Of the 7 traumatic cases 2 were due to laceration of the cervix, 3 were due to a tear in the vestibule, 1 to a deep vaginal laceration, and 1 to laceration of the perineum. They were all sutured. There was no maternal death.

### RUPTURE OF THE UTERUS.

There was one example of this accident.

M. K., aged twenty-eight, 5-para, admitted 6th June, 1895, at 7 30 a.m. Labour had commenced at 6 a.m., and she had strong pains. At 11 45 a.m. the os was fully dilated; some blood had escaped per vaginam during the previous half hour, but ceased after rupture of the membranes. When six hours in the second stage forceps were applied, and a dead child delivered. The uterus contracted firmly, but failed to expel the placenta. All efforts to express it having failed, after fifty minutes the hand was introduced, and a laceration through the lower uterine segment and cervix was discovered in the posterior wall, through which the placenta had escaped into the abdominal cavity. Following the cord the hand was passed through the rent, and the placenta removed. A strip of iodoform gauze was passed through the tear, and left there for two days. That evening her temperature reached 101·2°, but was normal next morning. In the evening it was again 101°, and pulse 120. Next morning both had fallen to normal, and continued so until she was discharged on the 20th.

### OVARIAN TUMOUR.

The cystic tumour, which was somewhat larger than the fœtal head, was easily pushed up out of the pelvis at the commencement of labour, and gave no further trouble.

MYOMATA.

H. S., aged forty-four, 3-para, admitted 28th April, 1894; nineteen years since birth of last child; uterus infested with multinodular myomata; labour very tedious; a large submucous myoma almost closed the os. The hand was passed into the vagina and two fingers into the uterus beyond the tumour. A foot, which fortunately was the presenting part, was seized, and by means of it extraction was effected with considerable difficulty. The child, which was macerated, weighed 7¼ lbs. The mother made a good recovery.

E. B., aged thirty-eight, 1-para, admitted 12th February, 1894. Upon abdominal examination the uterus was found infested with myomatous nodules, the fœtus presenting in the second position, with the head freely movable above the pelvic brim. Per vaginam, a tumour as large as a fœtal head was found occupying Douglas' pouch, and encroaching upon the conjugate diameter to such an extent as to render the passage of the child impossible. The tumour was firmly fixed, so that it could not be pushed up out of the pelvis, nor could the presenting part be reached by the examining finger. Abdominal section was performed on Friday, May 4th, the uterus was drawn out and opened. The fœtus extracted began to cry almost immediately. The removal of the tumour was difficult owing to firm adhesions of its upper third, which was covered with peritoneum, and to the extra peritoneal development of the lower two-thirds, necessitating careful enucleation. An elastic ligature was placed around the cervix below the tumour, and the latter, with the uterus, removed. The cervix was then extirpated per vaginam, the broad ligaments having been secured by clamps. A large mass of tissue was then found outside the clamp on the left side; it was drawn down, another clamp placed outside, and the mass removed, and upon examination was found to be a second uterus, which admitted a sound to the normal depth (the specimens were exhibited at the meeting of the Obstetrical Section of the Royal Academy of Medicine, Ireland, on Friday, May 18, 1894). Convalescence was delayed by thrombosis of the short saphenous vein of the left leg, but she ultimately left the hospital, with her infant, in good health.

Of the other cases 2 were subperitoneal myomata, which caused no trouble; 3 were interstitial multinodular myomata. Two of these women aborted, and 1, M. K., has been already reported as a case of post-partum hæmorrhage, and 1 with a submucous tumour aborted at the third month.

DEFORMED PELVIS.

Twenty-one cases were reported, 2 of whom delivered themselves without assistance; 1 in which the child presented with breech required manual assistance; 4 were extracted with forceps, once the instrument was applied before the head had passed the brim, and three times for secondary inertia after it had entered the pelvic cavity; 9 were delivered after induction of premature labour, 3 by craniotomy, 1 by symphysiotomy, and 1 by Cæsarean section. Two mothers and 7 children died.

| Name | Age | Para | Delivered | M | C | —— |
|---|---|---|---|---|---|---|
| A. K. | 28 | 5 | 17 Jan., 1894 | R | A | High forceps |
| M. B. | 33 | 4 | 26 Feb., ,, | R | A | Induction of labour |
| K. M. | 36 | 6 | 14 March, ,, | R | A | Do do |
| N. C. | 42 | 8 | 31 March, ,, | R | D | Low forceps |
| M. K. | 23 | 4 | 1 June, ,, | R | D | Perforation of after-coming head |
| A. B. | 29 | 5 | 5 August, ,, | R | D | Low forceps |
| J. S. | 28 | 2 | 28 Oct., ,, | D | A | Cæsarean section |
| E. W. | 37 | 9 | 23 Jan., 1895 | R | A | Induction of labour |
| B. S. | 27 | 5 | 3 Feb., ,, | R | A | Breech |
| K. M. | 36 | 6 | 15 March, ,, | R | A | Induction of labour |
| M. K. | 33 | 10 | 9 May, ,, | R | A | Do do |
| B. H. | 26 | 4 | 4 June, ,, | R | D | Perforation |
| A. B. | 40 | 9 | 15 Sept., ,, | R | A | Low forceps |
| M. D. | 27 | 4 | 16 Sept., ,, | D | A | Induction of labour |
| E. M. | 25 | 6 | 7 March, 1896 | R | D | Do do |
| M. E. | 25 | 4 | 9 March, ,, | R | A | Natural efforts |
| K. K. | 33 | 4 | 15 May, ,, | R | D | Induction of labour |
| E. A. | 23 | 4 | 17 June, ,, | R | A | Do do |
| M. B. | 25 | 5 | 9 July, ,, | R | A | Symphysiotomy |
| M. N. | 23 | 3 | 19 Aug., ,, | R | A | Natural efforts |
| S. K. | 28 | 1 | 15 Oct., ,, | R | D | Perforation |

Case I.—A. K., aged twenty-eight, 5-para, admitted 17 Jan., 1894. Patient had been a long time in labour; waters had escaped 18 hours before admission, meconium escaping. The contraction ring was high up, and head above the brim. Fœtal heart slow; os $\frac{3}{4}$ dilated; large caput succedaneum; conjugate of brim, $3\frac{3}{4}$ inches. A living child was extracted with considerable difficulty by forceps.

Case V.—M. K., aged twenty-eight, 4-para, admitted 31st May, 1894. Her first two labours were terminated by craniotomy; the third, in the Rotunda Hospital, by induction of premature labour, and that child was still living. Although warned of the dangers attending delivery at term, she now presented herself in labour at full term, the breech presenting. All efforts to deliver the after-coming head were fruitless until after the child's death, when it was perforated and extracted.

Case VII.—J. S., aged twenty-eight, 2-para. This patient had been delivered in the hospital by Cæsarean section in 1891. The conjugate of the brim measured $2\frac{3}{4}$ inches, and the transverse $4\frac{1}{4}$ inches. It was therefore a generally contracted flat pelvis. She was admitted to the Lying-in Hospital on Sunday, October 28th, 1894, having been some hours in labour. The operation was commenced late in the afternoon, and had to be finished by lamp-light, and to this I attribute the unfortunate result. Upon opening the abdomen the intestines were found adhering to the uterine cicatrix, and were pushed off with a muslin compress. The uterus was then opened, the child extracted, and the cord ligatured and divided. It was a male weighing six and a half pounds, and began to cry immediately. The placenta and membranes were removed, and the wound closed with silk sutures. The intestines were carefully examined, but a small pin-hole opening was not discovered until the *post-mortem* examination. The abdominal wound was closed, and the patient put to bed. She died on the third day from escape of fæcal matter into the abdominal cavity; the child survived.

Case XII.—B. H., 4-para, admitted 16th May, 1895. May 29, bougies inserted and changed daily until June 2. Barnes' bags were then inserted and the os dilated. June 3, membranes ruptured. Next morning the head was still above the brim, the contraction ring a hand's breadth above the pubes, no fœtal heart, meconium coming away, large caput succedaneum. Version being impossible, and the child evidently dead, the head was perforated and extracted with Anvard's cranioclast. The placenta was adherent and had to be removed manually. She made a good recovery.

Case XIV.—M. D. died of septicæmia and is reported under that heading.

Case XVII.—K. K., first two children stillborn, three craniotomised, c.v. 9 cm. Labour induced by Krause's method; labour did not set in for some days; pains infrequent and inefficient; podalic version; child astride the cord; died during extraction.

Case XIX.—M. B., 5-para. Her first three children were stillborn, probably perforated, but of this she was uncertain. The fourth was saved by induction of labour in this hospital. She was now at full term. When the os was nearly dilated symphysiotomy was performed, the funis prolapsed, when the membranes ruptured. The child was turned and extracted without much difficulty; she made an excellent recovery. There was no abnormal mobility of the symphysis, and no trouble in walking. She left the hospital with her baby in excellent health on the 29th of August.

Case XXI.—S. K., aged twenty-eight, 1-para. On admission os size of half-crown. Large caput succedaneum on head which was freely movable above the brim; promontory easily felt, c.v. 7 cm.; waters had long escaped; meconium coming away; no fœtal heart; perforation.

LABIAL THROMBUS.

There were two cases:—

Case I.—E. B., aged twenty-three, 1-para, admitted Feb. 4, 1895. Labour commenced at 6 30 p.m. on the 3rd. At 10 a.m. next day a swelling was noticed in the left labium, which rapidly increased in size until it was as large as a fœtal head, distending the labium, bulging the vaginal wall inwards, and extending across the perineum. She was immediately sent into hospital and delivered with forceps. During delivery the tumour ruptured, and the perineum was lacerated. The rent extended up the vaginal wall almost to the lateral fornix; two large veins were ligatured, and the cavity plugged with iodoform gauze, which was removed after twenty-four hours; she made a good recovery.

Case II.—M. M., aged thirty-four, 7-para, admitted August 31, 1896. She was delivered naturally. Shortly after delivery she complained of very severe bearing down pain, "just like the head coming through." The left labium was swelled to the size of a turkey's egg, the inner aspect of a dark purple colour, and very tender to the touch. A $\frac{1}{4}$-grain of morphia was given hypodermically, and a compress applied to the vulva. Next morning the tumour had increased in size, and at 12 30 it burst with profuse

hæmorrhage; the rupture was found on the inner side of the labium. The cavity was freely laid open, clots turned out, and some bleeding points secured by suture. It was then well washed out with hot creolin lotion, and plugged with iodoform gauze; the vagina was also plugged with gauze and moist cotton wool, and a large pad applied to the vulva and secured by a T bandage. The patient, who was very collapsed, was treated by a hypodermic injection of strychnia, hot nutrient enema, and raising of the foot of the bed. She made a good recovery, and left the hospital in good health, excepting phthisis pulmonalis, from which she had previously suffered.

### FORCEPS.

Forceps were used in 117 cases, *i.e.*, once in 34 deliveries. The indications for their use were as follows:—

| | 1893-94 | 1894-95 | 1895-96 |
|---|---|---|---|
| Delay in second stage - | 30 | 27 | 41 |
| Rise in temperature - - | 1 | 1 | 0 |
| Rise in pulse - - | 0 | 2 | 1 |
| Slowing of fœtal heart - | 8 | 1 | 2 |
| Prolapse of funis - - | 1 | 0 | 0 |
| Accidental hæmorrhage - | 1 | 1 | 4 |
| | 41 | 32 | 40 |

Of these 87, or nearly three-fourths, were primiparæ. The ages of the primiparæ were:—

| | |
|---|---|
| Between 17 and 25 years - | 29 |
| 25 „ 30 „ - | 36 |
| 30 „ 35 „ - | 19 |
| 35 „ 43 „ - | 3 |

In one case only was the instrument used before the head had passed the brim of the pelvis—that is, one high forceps in 4,006 deliveries; it is reported under pelvic deformity. Two mothers died—1 in 2,003.

### CRANIOTOMY.

Three children were perforated; they were all dead, and have been reported under cases of pelvic deformity.

VERSION.

Was performed 42 times—12 times for shoulder presentations, 18 times for placenta prævia, twice for accidental hæmorrhage, twice for pelvic deformity, and 8 times for prolapse of funis.

ECLAMPSIA.

There were nine cases of eclampsia, five of which were ante-, two intra-, and two post-partum. Three of the mothers and four of the children died. One of the mothers went out undelivered and did not return.

| Name | Age | Para | Delivered | M. | C. | Time of Onset |
|---|---|---|---|---|---|---|
| C. T. | 34 | 6 | 4 Feb., 1894 | R | D | Ante partum |
| M. M. | 28 | 1 | 5 April, ,, | R | D | ,, |
| E. B. | 33 | 1 | 24 Oct., ,, | R | ? | ,, |
| M. H. | 19 | 1 | 23 Dec., ,, | D | A | Post partum |
| E. S. | — | — | Not | D | — | Ante partum |
| M. B. | 29 | 3 | 12 Oct., 1895 | D | D | ,, |
| S. M. | 28 | 1 | 28 April, 1896 | R | A | Intra partum |
| E. C. | 17 | 1 | 27 May, ,, | R | A | Post partum |
| K. W. | 35 | 5 | 10 July, ,, | R | D | Intra partum |

Case I.—C. T., aged thirty-five, 6-para, admitted January 13, 1894, in convulsions. Urine scanty, contained blood, and became almost solid on boiling. Between the fits she was semi-conscious, restless, and rambling. An enema was administered, and ½ grain morphia hypodermically. She had four fits during the following four hours when another ½ grain morphia was administered, after which she slept soundly for some hours. She regained consciousness next day and had no more fits; was kept on milk diet until the 18th, when she left the hospital. She was re-admitted on the 4th of February, and was delivered by the natural efforts of a macerated fœtus which presented with the breech. She made a good convalescence, and was discharged on the 10th.

Case II.—M. M., aged twenty-eight, 1-para, admitted March 31,

1894. She had had five fits before admission. Her urine contained blood and a large quantity of albumen. Half a grain of morphia was administered hypodermically and repeated every fourth hour until she had had gr. 1½. Labour did not set in until mid-day on April 5th, and she was delivered after seven hours of a dead macerated fœtus. In the meantime she had been restricted to milk and had no more convulsions.

Case III.—E. B., aged thirty-three, 1-para, admitted 27th September, 1894, in convulsions. She was six months pregnant, and her urine was scanty and highly albuminous. She was given mist. sennæ co. ʒiij., and when the fits recurred, morphia ½ gr., which was repeated in four hours. She had no more fits, and having been kept for three weeks on milk diet, she went out undelivered, and did not return.

Case IV.—M. H., 1-para, aged nineteen, admitted 23rd December, 1894, and was delivered, after nineteen hours, of a living child. Her urine was highly albuminous. Next morning she was seized with a violent eclamptic fit, and was given morphia ½ gr. She had four more fits before 3 p.m , when she got another ½ grain of morphia, after which she had no more fits. At 12 30 a.m. her temperature began to rise; at 2 a.m. it was 102°, and at 6 a.m. 104°. She discharged a large quantity of fœtid pus through her mouth and nose, became comatose, and died at 8 30 a.m. Unfortunately a *post-mortem* examination could not be obtained.

Case V.—E. L., admitted Feb. 9, 1895. Had had several convulsions, was comatose on admission, and died two hours after undelivered.

Case VI.—M. B., aged twenty-nine, 3-para, admitted October 11, 1895. Seven months pregnant; advanced Bright's disease; had had severe vomiting for past five months; was greatly emaciated; no œdema of feet or legs; urine dark-coloured, half albumen, contained bile pigment. The liver was enlarged, and the breath had a urinous odour. Convulsions set in at 5 p.m. on October 12. She was given a hot bath and ol. crotonis 1 gr. She had another fit at 11 p.m., when she got ½ grain of morphia. She became comatose, and died at 2 45 the next morning undelivered.

Case VII.—S. M., aged twenty-eight, 1-para. On admission (April 26, 1896) her feet and legs were very œdematous; urine contained a large quantity of albumen; was given mist. sennæ co. ʒii. At 12 25 a.m. on the 26th she had an eclamptic fit, and was

given ½ grain of morphia. She had four fits before 4 20, when the morphia was repeated. She had two fits before 10 a.m., when she got a third dose of morphia, ¼ grain. After this she had no more fits. The child was born alive at 2 50 p.m., and both left the hospital on the seventh day.

Case VIII.—E. C., aged seventeen, 1-para, admitted May 26, 1896. Was delivered at 2 50 of a living child, after a natural labour of seven hours. Urine scanty, dark coloured, highly albuminous. She was given pulv. jal. co. 5i., with calomel gr. 5. At 6 45 a.m. the next morning she had an eclamptic seizure, and was given morphia. She had a second at 7 5, after which she had no more, and made a good recovery.

Case IX.—K. W., aged thirty-five, 5-para, admitted July 18, 1896, in the second stage of labour. Two hours after admission had an eclamptic seizure. Forceps were applied, and a dead child was extracted. The urine was examined, and found to contain blood and a large quantity of albumen. She made a good recovery.

### MORBIDITY.

There were 172 cases in which the temperature rose above 100·8° F., *i.e.*, 1 in 23·2.

There were 2 cases of physometra, the result of antepartum putrefaction, one of which died.

Table *showing number of Cases with rise of Temperature above* 100·8° F.

| — | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | — |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100·8° but under 102·2° | 1 | 3 | 4 | 3 | – | 3 | – | 6 | 1 | 5 | 4 | 3 | 1893–4 |
| | 5 | 9 | 4 | 4 | 3 | 5 | 1 | 5 | 5 | 4 | 1 | 1 | 1894–5 |
| | 1 | – | 3 | 3 | 4 | 1 | 4 | 4 | 1 | – | 2 | 3 | 1895–6 |
| 102·2° but under 104° | 4 | 3 | 2 | – | 1 | 1 | 1 | 2 | – | 1 | 5 | 2 | 1893–4 |
| | 1 | 2 | – | 1 | 4 | 1 | – | 2 | – | 1 | – | 1 | 1894–5 |
| | – | 3 | 2 | 4 | 1 | – | – | – | 2 | 2 | 2 | – | 1895–6 |
| 104° but under 105° | – | – | – | – | – | – | – | – | – | 1 | 1 | 2 | 1893–4 |
| | 1 | 1 | 3 | – | – | 1 | – | 1 | – | 1 | 1 | – | 1894–5 |
| | – | – | – | 1 | – | – | 1 | – | – | – | – | – | 1895–6 |

Table *showing Months of Greatest Morbidity.*

| — | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1893-4 | 5 | 6 | 6 | 3 | 1 | 4 | 1 | 8 | 1 | 7 | 10 | 7 | 59 |
| 1894-5 | 7 | 12 | 7 | 5 | 7 | 7 | 1 | 8 | 5 | 6 | 2 | 2 | 69 |
| 1895-6 | 1 | 3 | 5 | 8 | 5 | 1 | 5 | 4 | 3 | 2 | 4 | 3 | 44 |
| | 13 | 21 | 18 | 16 | 13 | 12 | 7 | 20 | 9 | 15 | 16 | 12 | |

DEATHS.

| Name | Admitted | Delivered | Died | — |
|---|---|---|---|---|
| | 1893-1894 | | | |
| 1 M. D. | 13 Nov. | 15 Nov. | 20 Nov. | Uræmia |
| 2 K. C. | 20 Dec. | 29 Dec. | 5 Jan. | Septicæmia; child putrid |
| 3 E. D. | 19 Feb. | 19 Feb. | 24 Feb. | Chronic Bright's disease |
| 4 M. K. | 18 Aug. | 18 Aug. | 19 Aug. | Acute septicæmia |
| 5 K. K. | 15 Aug. | 16 Aug. | 19 Aug. | Hyperemesis |
| 6 E. H. | 1 Oct. | Not | 6 Oct. | Threatened abortion; septicæmia |
| 7 J. S. | 28 Oct. | 28 Oct. | 30 Oct. | Cæsarean section; perforation of intestine; peritonitis |
| | 1894-1895 | | | |
| 1 A. C. | 13 Dec. | 11 Dec. | 27 Dec. | Incomplete abortion; pyæmia |
| 2 M. H. | 13 Dec. | 23 Dec. | 25 Dec. | Eclampsia |
| 3 E. L. | 9 Feb. | Not | 9 Feb. | Nephritis |
| 4 C. H. | 24 June | 1 July | 2 July | Bright's disease |
| 5 E. D. | 31 Aug. | Not | 3 Sept. | Morbus cordis |
| 6 M. B. | 11 Oct. | Not | 13 Oct. | Bright's disease; uræmia |
| | 1895-1896 | | | |
| 1 M. D. | 15 Feb. | 17 Feb. | 25 Feb. | Induced labour; pyæmia |

From the above table it will be seen that of the 14 deaths 7 occurred in the first, 6 in the second, and only 1 in the third year. This is, so far as I know, a record year in the annals of the Lying-in Hospital. Of these deaths 6 were due to septicæmia, 6 to kidney diseases, 1 to hyperemesis, and 1 to morbus cordis.

The six septic cases were as follows:—

Case I.—K. C., aged thirty, admitted 20th Dec., 1893. Labour set in on the 27th, and waters shortly afterwards escaped. The labour was very tedious from uterine inertia. On the 29th her temperature rose to 103·4°. She was then in the second stage, so forceps were applied and a putrid fœtus was extracted. During extraction a quantity of fœtid gas escaped from the uterus. The placenta was adherent, and after the uterus had been douched out with creolin lotion it was removed manually. Next morning her temperature had fallen to 99°, but in the evening it rose to 103·6°. The uterus was again douched out and scraped with Rheinstädter's curette and an iodoform pessary placed in the cavity. She died of septicæmia on the eighth day.

Case II.—M. K., aged twenty-seven, 1-para, admitted 18th Aug., 1894. She had been about twenty hours in labour at her own home, where she was frequently examined and her vagina twice douched out. She had a severe rigor, and her temperature rose to 104°. She was then sent into hospital. On admission her temperature had fallen to 99° but her pulse was 135. She was immediately delivered with forceps and her uterus was douched with creolin. She died at 6 30 in the morning, nine hours after admission. The autopsy revealed nothing abnormal, but the case was evidently one of acute septicæmia.

Case III.—E. H., aged twenty-seven; six months pregnant; had been frequently plugged during the month previous to her admission to hospital, for profuse and recurrent hæmorrhages. Her case has been already fully reported under abortions.

Case IV.—J. S. Reported under Cæsarean Section.

Case V.—A. C., aged twenty-eight, 13-para, four and a half months pregnant. Had had severe hæmorrhage for ten days before admission, and the fœtus, she told us, had escaped five days before. The rest of the ovum was expressed soon after admission, and the uterus washed out. Six hours later she had a severe rigor, and her temperature rose to 104°. Next day, her temperature con-

tinuing high, the uterus was curetted with Rheinstädter's flushing curette and drained with iodoform gauze, but without benefit, and she died on the twentieth day.

Case VI.—M. D., aged twenty-seven, 4-para, admitted 7 Feb., 1895. This patient had been delivered on three previous occasions with great difficulty, owing to pelvic deformity. The pelvis, measured with Skutsche's pelvimeter, showed a true conjugate of 3 inches, and transverse $4\frac{3}{4}$ inches. Premature labour was induced without any difficulty by Krausse's method, but on the following day her temperature rose to 102·4°. She was douched out with creolin lotion. On the 5th day she had a rigor followed by profuse sweating. She was douched again and curetted with Rheinstädter's curette. During the night she became wildly maniacal and died on the 7th day.

The other fatal cases were as follows:—

M. D., aged twenty-four, 2-para, admitted November 13, 1893. Had been seriously ill for three weeks previously with general anasarca. On admission she was semi-conscious, and so helpless that she could not walk, passed urine and fæces under her, and the day after had severe hæmorrhage from the bowels. No vaginal examination was made at any time during her stay in hospital. On November 15 she was delivered naturally of a macerated fœtus. On the third day her temperature suddenly rose to 103°, but sank in twelve hours to normal and did not rise again. She died of uræmia on the 6th day.

E. D., admitted February 19, 1894, 1-para. Had suffered for a long time from chronic Bright's disease. On admission she was hemiplegic and aphasic, and had been so for three months. She had also a violent cough and dulness on percussion, with bronchial breathing over the right lung. Her urine was loaded with albumen. Delivered the same day, by the natural efforts, of a living child. She died on the 5th day.

E. L., admitted February 9, and M. W., admitted Dec. 23, 1894. Have been detailed under eclampsia.

C. H., M. B., and K. K. have been reported under hyperemesis.

E. D., aged thirty-six, admitted August 31, 1895, with aortic valve disease, from which she died on the 3rd of September. She happened to be three months pregnant.

ART. XXII.—*Cancer of Œsophagus with Secondary Growths perforating the Trachea and the Right Subclavian Artery.*[a] By JOHN WILLIAM MOORE, M.D., B.A. Univ. Dubl.; F.R.C.P.I.; Fellow of the Royal Medical and Chirurgical Society; Senior Physician to the Meath Hospital; Professor of Practice of Medicine, Royal College of Surgeons in Ireland.

QUESTIONS of diagnosis are always of interest—never more so than when the seat of disease is one of the great cavities—the skull, the thorax, or the abdomen. In the case I am about to record, a cancerous growth caused pressure symptoms within the thorax so closely resembling those of aneurysm of the terminal portion of the arch of the aorta as to lead me to a wrong diagnosis of that lesion. Sudden death by profuse hæmorrhage seemed to confirm the diagnosis, which was entirely overthrown by the *post-mortem* examination. The case is as follows:—

*Clinical History.*—James C., aged fifty-six years, by trade a corkcutter, was admitted to the Meath Hospital on Monday, the 4th of October, 1897. The following are the notes of the case taken by Mr. Mervyn Falkiner, my clinical clerk at the time:—

"About six months previously the patient, on getting up one morning, noticed that he was hoarse. He could offer no explanation of this symptom. His appetite began to fail, and he had a considerable amount of difficulty in swallowing. About three months afterwards he got a cough and spit, which he compared to the yolk of an egg. This was sometimes mixed with a little *red* blood. During all this time his dysphagia increased, till, at the time at which these notes were taken, he was unable to swallow solid food at all, and took a long time to drink a cupful of fluid. Last week he came to hospital as an extern patient, and had a bougie passed down his œsophagus, which relieved him greatly.

"October 8th.—Sonorous rhonchi and sub-crepitant râles are heard at the left base, with puerile breathing. There are no signs on inspection, palpation, or percussion. The expectora-

[a] Read before the Pathological Section of the Royal Academy of Medicine in Ireland, on Friday, March 25, 1898.

tion is now more abundant, and contains a larger quantity of blood. Circulatory system is apparently normal.

"October 30th.—The sputum is now fœtid, and there is a horrible smell from the breath. Some small pieces of lung tissue have been found in the sputum. Apparently a localised gangrene is present. Eyes—the pupils differ in size; the right pupil is small, the left is large. This sign has been constant. There is laryngeal stridor; it occurs with inspiration. The left pulse is smaller than the right. Dr. Lane Joynt examined the case with a laryngoscope, and found the left vocal cord paralysed. He also took a skiagram, which was one of the best I ever saw; but it does not show any definite sign of a tumour."

The following notes of the case from Nov. 1st, 1897, were taken by my clinical clerk, the late Mr. Valentine Walker:—

"The patient's appearance gives no indication as to the nature of his complaint, his face being full and well nourished, his complexion, however, is pale and pasty, and rather suggestive of renal trouble. The most noticeable thing about him is the stridulous breathing; it is not, however, very marked except on exertion; he speaks in a hoarse whisper, but his articulation is distinct; he has difficulty in swallowing, but can manage a little solid food; his appetite is fair. On inspection of his chest nothing particular is seen, it is perhaps a little enlarged in the upper half, suggesting emphysema; on palpation nothing is apparent. On percussion no localised area of dulness can be made out. On auscultation rhonchi are heard and puerile breathing, especially over the left lung. The heart sounds are normal and are not conducted abnormally.

"The left pulse is said to be smaller than the right, but this is doubtful. I examined for laryngeal tugging but it was not present. He was given creasote every fourth hour. This has relieved the breathing and reduced expectoration, and the breath is no longer fœtid.

"His diet consists of milk, two egg-flips, chicken or mutton, and 4 ozs. of whisky.

"He left the hospital and went home on November 22nd, 1897, but was re-admitted on December 4th at his own urgent request. He had never left his bed since leaving the hospital, and looked a good deal worse, though he did not seem to have lost much flesh. The breathing was difficult and stridulous, and his voice

was very hoarse; loud rhonchi and coarse râles were present, and expectoration was fairly abundant, and it was sometimes tinged with blood. Swallowing is more difficult and the appetite is worse. Double meiosis is present. The breath is fœtid. He was again put on creasote and turpentine capsules; this improved the breath and the fœtor diminished.

"About the 10th of December he lost all appetite for food. He could give no reason for this; he did not feel sick, but food that he tried to swallow always came up again after a few minutes. This loss of appetite was the only symptom that distressed him. All this time he never complained of any pain. The only thing he took from this time till his death was whisky.

"He complained of a 'draw' in his breathing, as he described it."

Mr. Walker adds:—

"I saw him last alive on Wednesday, the 22nd, on my night round; he was asleep and looked as usual. I had not noticed any particular change in him. He was sitting in a chair at the fire on Tuesday night.

"He died on Thursday morning at five o'clock from profuse hæmorrhage."

The following notes of the autopsy were taken by Mr. Walker:—

"*Post mortem.*—The body was not wasted, but looked well nourished; there was no external evidence of a tumour. On making the usual incision there was a large amount of adipose tissue. The sixth costal cartilage on both sides was ossified, the others were not. When the thorax was opened, the right lung was seen to stretch right across the middle line, and was emphysematous-looking; it did not collapse. The pericardium was not visible, and only a small part of the upper lobe of the left lung, which was full of blood and deep red in colour, came into sight. When separating the right lung slight recent adhesions were met with; having removed it, the heart was found to be unusually small and contracted.

"A tumour could now be felt blocking up the inlet of the thorax; it was hard and nodular. To remove this the first rib and right clavicle had to be cut through. I then removed the larynx, trachea, œsophagus, heart and great vessels, and the left lung *en masse*. The tumour was found to be situated round the innominate artery, and in the posterior wall of the trachea the

œsophagus was adherent and somewhat constricted, but not perforated. Another tumour was felt in the œsophagus about an inch above the diaphragm; the finger could not be passed through here.

"The left lung was firmly adherent, especially to the diaphragm, and was greatly congested. On opening up the trachea about an inch below the larynx, and on the posterior wall, a large perforation was found with irregular necrosed walls and surrounded by a cancerous growth. This growth surrounded the innominate artery and the origin of the right carotid and subclavian arteries. On opening these a number of small perforations were found which opened into the hollow of the cancerous ulcer. These were situated in the right subclavian artery, just beyond its origin. The tumour on the lower end of the œsophagus was hard and nodular, and had constricted it greatly. The upper tumour occupied the thoracic inlet so fully that the first finger could not be forced up under the sternum."

I am indebted to Professor A. C. O'Sullivan, Fellow of Trinity College, Dublin, for the following note of the macroscopic and microscopic appearances in the case :—

"A tumour was found in the œsophagus commencing an inch below the level of the bifurcation of the trachea, extending downwards for 2 inches, and $\frac{3}{4}$ in. thick in its thickest part. It passed round the posterior and lateral walls, leaving a strip $\frac{1}{2}$ in. wide free on the anterior wall. It was deeply ulcerated in the middle, and a superficial ulceration extended from it downwards, ending sharply by an irregular line which divided it from the normal epithelium.

"Along the left side of the œsophagus was a chain of lymph glands, hard, enlarged, and evidently infected by the tumour. They had been cut away at the level of the bifurcation, and could not be traced further.

"On the right side, commencing about an inch above the bifurcation and extending to the level of the cricoid cartilage, was a second tumour-mass 3 in. long, and about $1\frac{1}{2}$ in. in cross diameter, nodular and hard, which was partly composed of infiltrated lymph glands, and involved the lower part of the thyroid gland. This mass surrounded the right and posterior walls of the trachea, passing between it and the œsophagus. It also surrounded the innominate artery and the origins of the right subclavian and common carotid, except in front. The

large veins passed free in front of it, and the vagus nerve passed through the mass, showing a bulbous swelling just before entering it. (This was not examined microscopically.)

"The œsophagus was closely connected with the mass, but not involved in the growth. It was puckered-in in one spot, and had two small superficial ulcerations near that spot.

"In the posterior wall of the trachea there was a large hole, $\frac{3}{4}$ in. by $\frac{3}{4}$ in., the floor of which was formed by the tumour.

"On the right wall, close to this, was another smaller perforation, which was filled with blood-clot and communicated with a perforation at the origin of the right subclavian artery. This perforation, also filled with clot, was $\frac{1}{2}$ in. by $\frac{1}{4}$ in.

"Round these perforations the mucous membrane of the trachea was irregularly swollen and ulcerated, and this condition extended for some distance upwards and downwards. Microscopic examination showed both growths to be squamous cancer."

*Remarks.*—I am free to admit that the result of the *post-mortem* examination in this case greatly surprised me. The absence of anything resembling cancerous cachexia or of any constitutional disturbance, and the presence of a whole group of pressure symptoms, led me to the belief that the lesion was most likely an aneurysm of the terminal portion of the arch of the aorta pressing backwards and to the left. The laryngeal stridor with paralysis of the left vocal cord pointed to pressure on the recurrent laryngeal nerve; the dysphagia, to pressure on the œsophagus; the bronchial catarrh and dyspnœa, to pressure on the left bronchus; the recurrent appearance of fœtid breath and expectoration, to pressure on the nutrient vessels of the left lung.

It is true that the physical signs of thoracic aneurysm were wanting. There was no marked area of dulness on percussion, or fulness, or tumour, or area of pulsation, excentric and distensile in character; or localised area, in which sounds resembling those of the heart were audible. But "it has been aptly said that aneurysms of the ascending aorta were those of physical signs, while aneurysms of the transverse arch were those of symptoms" (Horace Parsons).[a] Dr. Stokes, also, in his masterly Treatise on Diseases of the

[a] Medical Record, New York, Feb. 19, 1898, page 267.

Heart and Aorta,[a] makes the following pertinent observations:—

"As the two most common forms of intrathoracic tumour are those of aneurysm and of cancer, and as all the symptoms of excentric pressure are more or less common to the two diseases, the rule is easily derivable that an intrathoracic tumour having been discovered, the diagnosis will be between aneurysm and cancer. As the first of these affections, however, is so much more frequent than the second, the chances will be greatly that in any given case of intrathoracic tumour the disease is aneurysmal.

"But I have already shown that a cancerous tumour may not only produce all the symptoms which we observe in aneurysm as proceeding from compression of surrounding organs, but that it may exhibit a diastolic pulsation, accompanied by a distinct bellows murmur. As might be expected from the rarity of the disease, our experience of those cancers which simulate aneurysm is as yet but limited. I am aware, however, of two cases of cancerous tumour—the one presenting only the signs of surrounding pressure, without pulsation or murmur; the second having the latter signs, in addition to those of pressure on surrounding parts."

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### PICRIC ACID POISONING BY EXTERNAL USE.

M. Latouche (*Gazette des Hôpitaux*), in two cases of burns occurring in children, aged four and nine years respectively, dressed the sores with a saturated solution of picric acid in water. The first two dressings gave pain, and the solution was replaced with an ointment containing 10 per cent. of picric acid. The dressing caused "atrocious" pain, vomiting, prostration, and black albuminous urine, in which picric acid was found.

### UNUSUAL CAUSE OF HERNIA.

M. Latouche (*Gazette des Hôpitaux*), a few days after puncturing a hydrocele of the cord in an infant, was called to see his patient, who was suffering from a strangulated hernia. On cutting down on the inguinal opening he found that a loop of small intestine had passed through the opening made by the puncture, and was strangulated in the vaginal peritoneal sac.

[a] Dublin: Hodges & Smith. 1854. Page 603.

# PART II.

## REVIEWS AND BIBLIOGRAPHICAL NOTICES.

*Supplement to the Fifty-fifth Annual Report of the Registrar-General of Births, Deaths, and Marriages in England.* Part I.—1895. Ditto, Part II.—1897. Presented to both Houses of Parliament.

(*Continued from p. 317.*)

[THIRD AND FINAL NOTICE.]

The subject of the relation between occupation and death-rate is one of deep interest, especially in England, where the occupations of the people are so varied, and carried on under such diverse circumstances. Dr. Tatham deals with the subject under the heading, "Mortality of Men engaged in different Occupations," dealing only with those of 15 years and upwards; females are altogether excluded from the inquiry for two reasons: "first, the uncertainty attaching to the statements of female occupations, both in the Census returns and in the death registers; and secondly, the fact that while 94 out of every 100 males at these ages [15 and upwards] are returned as following more or less definite occupations, only 38 out of every 100 females at the same ages are so returned."

Dr. Tatham refers to Dr. Farr's first attempt to deal with this subject, and continues:—

"Dr. Farr based the calculations in his first Supplement on the numbers living in 1861, and the deaths in 1860 and 1861; and the calculations in his second Supplement partly on the numbers living and the deaths in 1871, and partly on a combination of the two sets of facts. Dr. Ogle's calculations ten years later were based on the census population in 1881 and the deaths in three consecutive years 1880-81-82. In the following pages I have set out the details of mortality in the three years 1890-91-92, and in so doing I have taken frequent opportunities of comparing recent experience with the experience of earlier years.

"In Dr. Farr's two Decennial Supplements the mortality of men engaged in several industries was considered *in relation to age only;* no attempt having been made to treat of the *causes of death.*"

In 1880-82 Dr. Ogle attempted with very considerable success to carry his work a step beyond Dr. Farr, but owing to the magnitude of the task had to confine himself to abstracting from the registrars "'considerable samples' of the causes of death in several industries, and divided out the total mortality of each industry among these causes according to the proportions existing in the respective samples. In this way Dr. Ogle was able to prepare the valuable tables on 'Causes of deaths of Males in different Industries,' which illustrated his decennial report."

When the next Census period came round Dr. Ogle determined to take another step in advance. The preparation of the material for this purpose is thus divided by Dr. Tatham, and will give some idea of the magnitude of the work entered upon by Dr. Ogle, and continued by Dr. Tatham:—

"With the help of a portion of the census staff, he caused to be extracted from the death registers on separate slips of paper the age, the occupation, and the registered cause of death of every male over 15 years of age who had died in England and Wales in the three years 1890-92. The slips, more than half a million in number, were then examined by clerks who had been employed in classifying occupations for the Census Report, and each slip was distinctly marked with the heading under which the occupation should fall. This stage had been reached by the end of 1893, at which time I succeeded Dr. Ogle in this office, and consequently became responsible for the remaining processes of the work.

"At the outset, thanks to the forethought of Dr. Ogle, I found myself in possession of a mass of statistical material on the subject of occupational mortality more copious than any that had been at the command of previous inquirers. In determining the uses to be made of this material, it was at once seen to be of the first importance for purposes of comparison that the methods adopted should be as nearly as possible identical with those which had been employed by my predecessors, and that any alterations in the form of tables should partake mainly of the nature of developments. Dr. Ogle had classed the causes of death under thirteen headings—alcoholism, liver disease, gout, phthisis, diseases of the nerves, circulatory, respiratory, digestive, and urinary

systems, plumbism, accident, suicide, and 'all other causes.' After careful consideration I determined to increase the number of headings to twenty-four by distinguishing valvular disease of heart and aneurysm from other circulatory diseases; bronchitis, pneumonia, and pleurisy from other respiratory diseases; hernia from other digestive diseases; Bright's disease from other urinary diseases; and by separating influenza, rheumatic fever, cancer, and diabetes from 'all other causes.' The task of marking the half million slips in such a manner as to indicate clearly to which of the twenty-four headings each cause of death belonged, could, of course, be entrusted only to responsible persons possessing special knowledge and experience."

The marking and sorting of these slips was the main cause of the delay (to which we have already referred) in publishing Part II. of this Report.

The following extract shows the great care and ingenuity which has been exercised in arranging the material before Dr. Tatham proceeded to make tabular statements and draw conclusions:—

"There is abundant evidence to show that the mortality of men similarly employed is powerfully influenced by conditions of occupation, which for the most part prevail locally. With the object of learning something concerning the extent of that influence, whilst at the same time avoiding undue elaboration of detail, I adopted the following plan. As a preliminary to sorting, the slips belonging severally to London, and to certain groups of counties and districts, the populations of which are mainly engaged either in industrial, in agricultural, or in mining occupations [a foot-note gives the district], were separated from those belonging to the remaining parts of the country. Provision having been made for the fact that some of these groups overlap one another—for example, that some districts in distinctively mining counties are the seats of other industrial occupations also—the work of sorting was commenced. The slips belonging to each group of districts were arranged, in accordance with the marking already explained, in rather more than 400 parcels, corresponding to the extended list of occupations in the Census Report. To prepare complete mortality statistics for each of these occupations was obviously out of the question. My predecessors had selected for special notice some of the more definite industries, and had arranged others in groups, thus bringing the total number of headings within manageable limits. By a slight modi-

fication of Dr. Ogle's plan, I prepared a list of 100 separate headings, which included the whole of the occupations, and the assorted parcels of slips were then arranged under these headings, in readiness for the final sorting by age and by cause of death. On the completion of this final sorting the slips were counted and the numbers entered on sheets prepared for the purpose; and, finally, by adding together all the sheets belonging to each of the occupational groups, the tables [appended to the Report] were produced. In this manner the mass of detached facts, representing in the aggregate more than half a million deaths, have been reduced to tabular form, and adapted to the purposes of statistical investigation."

From the extracts which we have given it will be observed that the work of building up this important statistical structure, regarding the relation between occupation and mortality, has been going on for upwards of 30 years, and has not yet, in our opinion, reached a stage commensurate with its importance. This branch of the work, which has gradually been developed in the hands of Drs. Farr, Ogle, and Tatham, is most valuable, but surely it should not have taken 30 years to bring it into its present far from perfect condition.

With regard to the years (25-65 being those adopted) of greatest capacity for effective work, the following remarks are extremely interesting and well put:—

"Dr. Farr, in his Supplement to the 35th Report, indicated the period of life between 25 and 65 years of age as that in which 'the influence of profession is most felt.' Ten years later Dr. Ogle adopted the same view, supporting it by the argument that 'in the earlier age-periods the effect of occupation is not as yet fully developed; and the last age-period, 65 years of age and upwards, is that which is more especially affected by the . . . . retirement from the industry of such men as have become too weakly to follow it.' My own recent inquiries having tended to confirm the opinion expressed on this subject by my predecessors, I have, in the present volume, retained the same interval—namely, that between 25 and 65 years of age, as marking the period of life during which the effects of occupation are most conspicuous. In the case of the majority of industries this is generally held to be the term of years which almost accurately measures the duration of man's greatest capacity for effective work. There are, however, several industries in which this is by

no means the case. The learned professions, for example, furnish striking exceptions; for, apart from the fact that save in rare instances the highest positions, whether in the church, in the law, or in medicine, are attained only by persons who have passed the meridian of life, it is assuredly true that much of the most useful work of our clergy, our lawyers, and our medical men, is done subsequently to their sixty-fifth year. On the other hand, with respect to many occupations which demand continuous and exhausting bodily labour the case is again different. Miners, cotton spinners, and some other workers begin the actual task of bread winning earlier in life than most other males do; and it is certain that, as a rule, their ability to labour profitably begins to decline at an earlier stage. Consequently it may safely be assumed that the working period both commences and terminates at an earlier date in the industrial occupations than it does in the learned professions. It is obvious then that no fixed term of years can indicate with precision the limits of working power for every occupation. The age-group 25-65 years, however, presents as fair a compromise as any that can be devised."

Dr. Tatham then refers to the influence (which he had already insisted on) of the age and sex constitution of populations on their death-rates, and illustrates it by the remarkable table subjoined, showing the relative rates of mortality per 1,000 of all males and of farmers:—

| ——— | 15– | 20– | 25– | 35– | 45– | 55– | 65 and upwards |
|---|---|---|---|---|---|---|---|
| All Males - - | 4·14 | 5·55 | 7·67 | 13·01 | 21·37 | 39·01 | 103·56 |
| Farmers - - | 1·30 | 2·40 | 4·29 | 7·03 | 11·20 | 23·97 | 87·81 |
| Mortality of farmers to that of all males taken as 100 - | 31 | 43 | 56 | 54 | 52 | 61 | 85 |

Dr. Tatham's remarks upon this table may be taken as an illustration of his whole method of dealing with this subject, and we therefore offer no apology for giving them *in extenso*:—

"From the lower line of this table it may readily be gathered that at ages above 15 years the mortality of farmers averages between 50 per cent. and 60 per cent. of the mortality of all

males; but, if the mortality be calculated on the total years of life, and the total deaths, at ages 15 and upwards, the result will be widely different. Thus reckoned the mortality of all males would stand as 18·74 per 1,000, and that of farmers as 19·58. The paradox that farmers die more slowly at each separate group of ages than do all males, but that farmers in the aggregate die faster than all males do, is easily explained when the difference of age constitution as between farmers and all males is taken into account. The figures in Table I. show that there are nearly three-fourths as many farmers above 65 years of age, when the mortality is about 88 per 1,000, as there are at ages between 25 and 35 when it is only 4¼ per 1,000; while among all males the number over 65 years when the mortality exceeds 103 per 1,000 is less than one-third of the number between 25 and 35 when it does not reach 8. It is clear, then, that crude death-rates, the use of which as between separate localities demands caution, are entirely untrustworthy as a means of comparing one occupation with another; accordingly, in this volume, the death-rates have been intentionally omitted from the columns headed 'Total 15 years and upwards.' The use of a crude rate in the entire age-period 25-65 years is open to a similar objection, since different occupations show extreme variations in age constitution even within these limits. From what has already been said in Part I. of this Supplement it is evident that this objection can be met by the calculation of 'death-rates in standard population.' This is practically the method which was employed by Dr. Ogle in dealing with the occupational mortality of the years 1880-82, although his results were expressed in a somewhat different fashion. His 'standard population' was the number of men aged 25-65 in the whole population among whom 1,000 deaths would occur in a year; the population in 1881 and the deaths in 1880-82 being taken as the basis. That number was found to be 64,641, including 41,920 between 25 and 45, and 22,721 between 45 and 65 years of age. The question then arose, how many deaths would occur in a year, according to the death-rates ascertained for a given occupation, among 41,920 men aged 25-45, and 22-721 men aged 45-65? The resulting number of deaths was called the 'comparative mortality figure' for that occupation; it represented with approximate accuracy the mortality prevailing in the occupation, as compared with the general male mortality. Following the same method for the purposes of the present Report, I find that on the average of the three years 1890, 1891, and 1892, 1,000 deaths occurred annually among 61,215 men between 25 and 65

years of age. At the census of 1891 occupations were abstracted in *decennial groups of ages*, whereas at the previous census they had been abstracted in *vicennial age-groups* only. In this respect I have an advantage which was not possessed in 1881 by my predecessor, and consequently I am able to bring each occupation more exactly into relation with the 'standard population' than had previously been possible. Of 61,215 men aged 25-65 at the census of 1891, there were—

| | | | | |
|---|---|---|---|---|
| 22,586 | in the | age-group | 25-35 | years. |
| 17,418 | „ | „ | 35-45 | „ |
| 12,885 | „ | „ | 45-55 | „ |
| 8,326 | „ | „ | 55-65 | „ |

"By applying to these four numbers the corresponding rates of mortality for any occupation shown in Table I., the number of deaths is ascertained which would occur among 61,215 men engaged in that occupation, but with the same age constitution as that which ruled in the general population. This number is the 'comparative mortality figure' for the occupation on the basis of the statistics for 1890-92, and if the calculated deaths in each of the four age-groups be proportionally divided out according to the causes of death in that age-group, the final result will show the parts of the comparative mortality figure which are due to the several causes. This has been done for each of the 100 selected occupational headings, and also for the grouped and subsidiary headings, and thus Table IV. has been constructed. By means of that Table the mortality of men in a large number of occupations and groups of occupations can be studied, and their varying liability to several of the principal causes of death can be traced."

Dr. Tatham then points out that "recent statistics of occupational mortality" may be studied in their relation to similar statistics for former periods, and in his Report he frequently makes such comparisons, indeed he does so whenever opportunity offers. He explains in his usual lucid manner the difficulties he has to encounter and the corrections he has had to make in order to overcome these difficulties, which are mainly due to a less minute division of the age periods in former than in the present Report. We regret that we cannot enter into these particulars, and must refer our readers to the original work. When our author reaches the subject of "Occupied and unoccupied males," to which he devotes a long and interesting section, in which he points out the many fallacies to which statistics

on this subject are liable to lead the uninitiated, he analyses the statistics of the 208,857 unoccupied males dealt with in the last Census Report, as follows:—

| | |
|---|---|
| "Retired from business - - - | 35 per cent. |
| Pensioners - - - - | 6 „ |
| Living on private means - - | 23 „ |
| Lunatics - - - - | 15 „ |
| Others (including an unknown proportion of paupers and prisoners) - - | 21 „ |

"As regards four of these five sub-classes this plan of classification seems at first sight to indicate with sufficient accuracy the reason for persons being returned as unoccupied; but on reflection it will readily appear that among persons under 65 years of age described as 'retired from business' there must be included many who have been compelled to retire on account of infirmity, and also an uncertain but possibly large proportion of unfortunate as well as of dishonest and dissolute persons who would be more accurately described as having failed in business than as having retired from business. Again, the last of the sub-classes, constituting 21 per cent. of the entire class, must be regarded as extremely indefinite."

Dr. Tatham "on reflection" deals with the almost innumerable difficulties raised by the above statements, and ably masters most of them. Following this interesting discussion, he proceeds to analyse the occupational mortality statistics of males by his selected districts, ages, and diseases. The following statements are of special interest:—

"The following table shows at a glance the departures from the average: the rate for all occupied males at each age-group is taken as 100, and the rates for occupied males in the three localized groups are shown proportionally:—

| ——— | 15- | 20- | 25- | 35- | 45- | 55- | 65 and upwards |
|---|---|---|---|---|---|---|---|
| All Occupied Males - | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Occupied Males, London - | 108 | 100 | 112 | 125 | 123 | 120 | 108 |
| Occupied Males, Industrial Districts - - | 120 | 109 | 119 | 128 | 135 | 137 | 118 |
| Occupied Males, Agricultural Districts - - | 82 | 92 | 82 | 72 | 67 | 71 | 92 |

"The following Table shows the mortality from certain specified causes in each of these three sections of occupied males, as compared with that among all occupied males, the mortality of the latter being taken as 100 in each case:—

| ——— | All Occupied Males | Occupied Males, London | Occupied Males, Industrial Districts | Occupied Males, Agricultural Districts |
|---|---|---|---|---|
| All Causes - - | 100 | 120 | 131 | 72 |
| Influenza - - | 100 | 100 | 100 | 100 |
| Alcoholism - - | 100 | 138 | 146 | 54 |
| Rheumatic Fever - | 100 | 100 | 114 | 86 |
| Gout - - - | 100 | 300 | 100 | 100 |
| Cancer - - - | 100 | 134 | 109 | 91 |
| Phthisis - - | 100 | 150 | 121 | 73 |
| Diabetes - - | 100 | 114 | 100 | 100 |
| Diseases of— | | | | |
| Nervous System - | 100 | 107 | 132 | 77 |
| Circulatory „ - | 100 | 107 | 122 | 75 |
| Respiratory „ - | 100 | 124 | 166 | 51 |
| the Liver - - | 100 | 111 | 119 | 89 |
| Other Diseases of Digestive System | 100 | 100 | 129 | 82 |
| Diseases of Urinary System - | 100 | 137 | 122 | 78 |
| Accident - - | 100 | 86 | 105 | 79 |
| Suicide - - | 100 | 129 | 114 | 86 |
| Other Causes - - | 100 | 91 | 130 | 76 |

Dr. Tatham next proceeds to analyse the mortality in each of the selected occupations. We need scarcely say it would be impossible in a notice such as this to follow the author in his elaborate discussion of the causes of death in what may be said to be each condition of work and of rural life. We shall not even venture to give selections or attempt an analysis of the general results. The extraordinary amount of labour and research bestowed upon this branch of the subject can be estimated only by those who make a careful study of Dr. Tatham's work.

In conclusion, we have to congratulate the Registrar-General for England in being possessed of such an able officer as Dr. Tatham, who on his first trial proves himself such a

worthy successor of Dr. Farr and Dr. Ogle, and, with no small degree of pride, we claim him as an *alumnus* of the University of Dublin.

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*Twentieth Century Practice.* An International Encyclopedia of Modern Medical Science by leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. Volume XII. Mental Diseases, Childhood and Old Age. London: Sampson Low, Marston & Co. 1897. 8vo. Pp. 849.

THE subjects dealt with in the twelfth volume of this great work are—insanity, idiocy, criminal anthropology, old age, and diseases of children other than infectious disorders. The contributors are only five in number—Dr. J. Boy-Teissier, physician to the Hôpital Sainte-Margarite (Hospice des Vieillards), Marseilles; Dr. G. Fielding Blandford, Lecturer on Psychological Medicine at St. George's Hospital, London; Dr. Jules Comby, Physician-in-Chief to the Hôpital Trousseau, Paris, and Editor of *La Medecine Infantile*; Dr. Césare Lombroso, Professor of Legal Medicine and Psychiatry in the University of Turin; and Dr. Paul A. Sollier, Professor of Hygiene in the Training Schools for Nurses of Paris, and Chief of the Clinique Adjunct for Mental Diseases in the University of Paris.

Dr. Blandford contributes the very admirable article on Insanity with which the volume opens. It runs to 254 pages, and is an excellent, common-sense exposition of the pathetic subject of which it treats. "Insanity," writes Dr. Blandford, "is a general term which, for the sake of convenience, by popular use is applied to every variety of unsoundness of mind. We use it much as we use the word 'fever.'" Inmates of a large lunatic asylum "resemble one another only in this, that they are all of unsound mind and out of harmony with their environment, and are taken care of in such an institution because they are incapable of taking care of themselves or managing their affairs."

The introductory sections are devoted to cerebral anatomy—which is briefly considered in the light of recent researches by Ramon y Cajal, Golgi, Andriezen, and His—pathology,

and ætiology. The causes of insanity group themselves, as usual, under the headings—predisposing and exciting. Those included in the former class are heredity, the insane diathesis or temperament, sex, age, civilisation, and "previous attacks." We notice that the word "tendencies" is used by the author as an explanatory synonym for predisposing causes. A whole host of exciting causes is given and described.

At page 72 will be found an interesting account of the curious lesion called the "insane ear," or hæmatoma oris or othæmatoma, as it is called. Dr. Blandford refers to a paper on the pathology of the affection which Dr. W. Ford Robertson has published in the fourth volume of the Edinburgh Hospital Reports.

The symptoms of insanity are very fully discussed, and then follows an account of the clinical varieties of the condition—namely, melancholia, stupor with dementia, acute dementia, acute delirious mania, mania, recurrent insanity, monomania, general paralysis of the insane, insanity without delusion, moral insanity and impulsive insanity. After a brief allusion to the terminations of insanity, Dr. Blandford discusses the question of treatment at considerable length. His remarks on the prevention of insanity are practical and of great importance, especially in reference to the delicate topics of self-abuse, drinking, and feeding, or rather fasting. "Another class," says the author, "thinks it carnal or sensual to indulge the appetite and eat one's fill, and endless evil comes to many who fast during Lent and other such seasons, and mortify the flesh according to the doctrines of an ultra-ritualistic party." "The Insane and the Law" is the closing topic of which Dr. Blandford treats, especially in regard to—(1) the sequestration of the person or property of an alleged lunatic; (2) the responsibility of a criminal alleged to be lunatic; and (3) the testamentary capacity of an alleged lunatic.

The second article in the volume before us is on "Idiocy," by M. Paul Sollier, of Paris. The author's definition of the morbid state he describes may be quoted. "Idiocy is a chronic cerebral affection, congenital or acquired during infancy, with lesions of varied sort, but always of wide extent, and often generalised, characterized by troubles of the intel-

lectual, sensory, and motor functions, extending possibly even to the entire abolition of these functions, and by vices of organic conformation and arrests of development, and which owes its special character, as regards particularly the intellectual troubles, only to the young age of the subjects which it attacks."

The story of the symptoms of idiocy as told by M. Sollier is sorrowful reading. As he describes them, he draws a distinction between idiocy and imbecility, establishing the differential diagnosis between the two conditions step by step.

A third article on a cognate subject is that on "Criminal Anthropology," by Césare Lombroso, of Turin. This is a still more harrowing topic than those which went before. All statistics agree in demonstrating the rarity of crime among women as compared with men. Although this may be true for grave crimes, it seems to the author that the statistics are misleading in one way, for prostitutes should be counted in with criminals. Lombroso makes the astounding statement, on the authority of Ryan and Talbot, that in London there is one prostitute for every seven women. In considering the "therapeutics of crime," Signor Lombroso expresses the opinion that, instead of attempting to cure crime when the delinquent has already reached adult life, we should aim at preventing it, by lessening (their complete annihilation being an impossibility) the causative influences previously enumerated.

"Old Age" forms the subject of a monograph by Dr. J. Boy-Teissier, of Marseilles. It is not a little remarkable that a "Boy" should write on "Old Age"! And very well he writes, giving us much food for reflection. Senility, according to our author, is a normal phase of existence, explained by biology. He then considers the anatomy of the old man and the physiology of senility. He discusses its causes and the means at our disposal for combating it. Among the latter he is far from including the administration of alcohol. "It has been said," he writes, "that wine is the milk of the aged, but I cannot subscribe to this aphorism, which is responsible for many cerebral hæmorrhages, attacks of angina pectoris, and of retention of urine." "It is sufficient

to have present in our mind the physiological action of alcohol, in order to be readily convinced of the pernicious *rôle* which it plays in the economy at all ages, and how much more it is actually dangerous in old age." "I regard normal senility as a period of reduced physiological activity, but all the parts of which are preserved in their harmonious relative proportions; and as metabolism should be proportional to the vital necessities, we cannot, without risking a disturbance of this equilibrium, introduce into the economy a food the principal property of which is precisely to provoke a functional hyperactivity in an organic medium adapted to a diminished functioning. Clinical observation and experience demonstrate every day with brutal force the correctness of these theoretical conclusions."

While thus insisting upon the dangers of a too generous or too stimulating diet, Dr. Boy-Teissier urges the physician to maintain at its highest degree of activity the respiratory function of his aged patients. "Oxygen is necessary at all periods of life, but especially in normal senility, in which the organic changes occurring in the lungs have, as a natural result, a very serious diminution in the power of respiratory exchange."

The author's observations on "Temperature" are excellent, but it will be difficult to persuade the old man that, instead of wrapping himself up in heavy garments and curling himself up in the chimney corner, "he ought to wear light though warm clothing," and "employ frequently general rubbing of the body and even sponging in water of a suitable temperature."

Of natural death Dr. Boy-Teissier speaks in complimentary terms. Death is necessary, useful, and finally good. But how rare is this natural death!—"that which occurs not through accident, but gradually, as the natural and final evolution of the being." The author then discusses the various modes of death from disease, the ordinary diseases in the senile, with their general and special pathological manifestations. He brings his paper to a close with a brief allusion to accidental and operative "traumatisms."

The last monograph in this volume is on Diseases of Children, excluding infectious diseases and rachitis. The

article runs to some 190 pages, and is written by Dr. Jules Comby, of Paris. The classification adopted is into general nutritive disorders or dyscrasiæ, and local or regional diseases—that is to say, the diseases which are localised in one organ or system of organs.

The first group may be further subdivided into—scrofula, arthritism, blood disorders, and diseases of evolution, rachitis being left out, as it had been already considered in Volume VII. "Arthritism is a term which includes obesity, asthma, migraine, diabetes, &c., which are for the most part hereditary affections." The work is in general well done, but in parts it is sketchy and correspondingly disappointing.

Taken as a whole, the volume fully sustains the reputation of "Twentieth Century Practice."

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*Introduction to the Study of Organic Chemistry.* By JOHN WADE, B.Sc. (Lond.). London: Swan Sonnenschein & Co. 1898. Pp. 460.

THIS book is intended as a guide to students commencing organic chemistry, and more especially for students in the universities and technical schools. It is carefully and accurately written, and quite up to date in its information.

The subject is treated experimentally from the outset, the hypotheses and theories which form so essential a scaffolding being introduced as the facts require them. Organic chemistry is not an easy subject of which to gain a firm grip, and we think that many would agree with us in feeling that Mr. Wade might, with advantage, have made the references to theory more ample, and possibly more attractive.

For example, in discussing the constitution of the four lactic acids, a brief account of stereo-isomerin is introduced, but scarcely sufficient to explain its importance to a novice in the matter. Neither does the exposition of Kekulé's ring theory of benzene appear to us to be as lucid as its fundamental significance demands.

The contents of each chapter are summarised in charts, which the author's experience as a teacher convinces him

will be found of material assistance to other lecturers and to students.

A brief scheme for the qualitative analysis of organic mixtures is given in an appendix, and in another appendix are the laboratory notes, which deal with the practical details of quantity and manipulation.

Mr. Wade has accomplished his task in a scientific, if somewhat dry, manner, and it may be said, without fear of contradiction, that anyone who has mastered the contents of his book and performed the experiments will have attained an accurate and comprehensive knowledge of organic chemistry.

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*Cutaneous Medicine: A Systematic Treatise on the Diseases of the Skin.* By Louis A. Dühring, M.D. Parts I. (1895) and II. (1898). Philadelphia: J. B. Lippincott Co.

Nearly 20 years ago Dr. Dühring published a text-book upon diseases of the skin which went through three editions. It was an admirable account of the subject, and held the foremost place among American treatises on dermatology.

This treatise was translated into French, Italian, and Russian, but for several years past has been out of print.

Dr. Dühring now puts forward a more comprehensive work, of which two parts have appeared, separated by an interval of three years.

The author's main object is to produce a practical work, resting upon clinical observation and supported by pathology and morbid anatomy. Therapeutic questions are discussed upon conservative lines in the light of modern research and experience.

The order in which the topics are taken up differs slightly from that adopted in the author's previous treatise. Part I. of the present work treats of general questions—viz., the anatomy and physiology of the skin, and this is followed by a sketch of the general symptomatology, ætiology, pathology, diagnosis, prognosis, and treatment of cutaneous affections. Part II. opens with an exposition of the

author's classification, which is essentially based upon the well-known scheme published by F. Hebra in 1845. This is a striking tribute to the soundness of the tenets of that great clinical observer.

The ground being thus cleared, the special affections of the skin are entered upon, and the first three groups are—(*a*) anæmias, (*b*) hyperæmias, (*c*) inflammations.

There are numerous good illustrations, both histological and clinical. The latter are full-page, and, although uncoloured, afford in many cases really excellent delineations of morbid appearances of the skin—*e.g.*, the erythemata and urticaria pigmentosa. Some of the illustrations are reproduced from the author's atlas. The clinical descriptions are usually clear, and are evidently the outcome of extensive experience; this is especially true of the articles on impetigo, dermatitis herpetiformis, and pemphigus. But we cannot so warmly congratulate the author upon his discussion of eczema, to which more than 100 pages are allotted. This important article is deficient in width of view, and the writer has not fully grasped the modern notions of secondary infection by pyogenic organisms, grafted upon a primary eczematous basis. Eczema seborrhoicum is inadequately described, and the whole section is scarcely up to the high level of the rest of the work.

With this exception we have nothing but commendation for Dr. Dühring's text-book.

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*Masters of Medicine: William Harvey.* By D'Arcy Power, F.S.A., F.R.C.S. Eng.; Surgeon to the Victoria Hospital for Children, Chelsea. London: T. Fisher Unwin, Paternoster-square. MDCCCXCVII. 8vo. Pp. 283.

The writing of this sympathetic and entertaining memoir of the discoverer of the circulation of the blood must have been a labour of love to Mr. D'Arcy Power.

The volume is one of the series of bibliographies of Masters of Medicine which Mr. T. Fisher Unwin, of Paternoster-square, London, is at present publishing, and which is to include a memoir of our illustrious fellow-

countryman, William Stokes, by his son, Sir William Stokes.

The setting of the volume is artistic and attractive. The late Mr. Ernest Hart, D.C.L., was appointed editor of "Masters of Medicine," and his lamented death has been a sad loss, more especially as he had undertaken to write the memoir of Edward Jenner.

The book includes nine chapters, an appendix giving authorities for the statements in each chapter, and a full alphabetical index of proper names and subjects. The topics discussed in the several chapters are Harvey's lineage and his early life; an account of the Lumleian lectures on surgery, "established at a cost of forty pounds a year, laid as a rent-charge upon the lands of Lord Lumley in Essex, and of Dr. Caldwell in Derbyshire;" the zenith, the civil war; Harvey's later years, his death, burial, and eulogy; his anatomical works, and the treatise on development. From this analysis it will be seen that Mr. D'Arcy Power has given a comprehensive review of Harvey's life and work. The author's account of the reasoning and experiment which led Harvey to make his great discovery is clear and easily followed. It is well worth reading, and the whole book will pleasantly and profitably while away a leisure hour, telling as it does in simple language the story of the life and times of one who may well be called a "Master of Medicine."

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*John Hunter: Man of Science and Surgeon* (1728–1793). By Stephen Paget. With Introduction by Sir James Paget. London: T. Fisher Unwin. 1897.

It is gratifying to every true lover of our profession to find an appreciative series of biographies of the heroes of medicine advancing to the view of the lay literary public on lines parallel to those occupied by the biographies of the "Builders of Greater Britain," and the histories of the valuable series edited under the generic name of "The Story of the Nations." Surely no more appropriate leader's name could be found in the long roll of the great intellects, to whose life-work our present knowledge of the theory and practice

of our profession is due, than that which illuminates the title page which now lies before us. His absolute devotion to the noble calling to which he devoted the mental and physical energies of his life can hardly, we think, be better evidenced than in the paragraph of concentrated information which we extract from page 116:—

"When Home went off to his eligible situation at Plymouth, John Hunter was fifty years old; Surgeon-Extraordinary to the King, Surgeon to St. George's Hospital, and a Fellow of the Royal Society; having a large practice, and a name known everywhere. Yet he never saved money; he was for ever adding to his museum, till he had spent no less than £70,000 on it, and he died scarce able to pay his debts. To have an idea of his absolute devotion of himself to scientific work, we must realise that he lavished on science the income that he had made at the risk of his life, by the hard work of practice, and even in ill-health and under the shadow of death never rested from his incessant task of collection, dissection, observation, and experiment. The letters to Jenner show the marvellous restlessness of these years, from 1779 to 1783, full of science and of practice, added or rather multiplied together. Honours came to him from abroad, from Gothenburg and Paris. The house in Jermyn-street could now no longer hold his collection, and he must move elsewhere, even at the cost of a bad bargain. Over everything hung the clouds of want of money, ill-health, and estrangement from his brother."

John Hunter died of angina pectoris, one of the special physical plagues of the "intellectual and anxious." The restless craving for additions to his collection has been illustrated by many an anecdote. Here is a characteristic one:—"The late Dr. Clarke had a preparation on which he set a high value, and Hunter had often viewed it with longing eyes. 'Come, doctor,' said he, 'I positively must have that preparation.' 'No, John Hunter,' was the reply, 'you positively shall not.' 'You will not give it to me, then?' 'No.' 'Will you sell it?' 'No.' 'Well, then, take care I don't meet you with it in some dark lane at night; for, if I do, I'll murder you to get it.'" And another:—"He was not unfrequently obliged to borrow of his friends, when his own funds were at a low ebb, and the temptation was strong. 'Pray, George,' said he, one day, to Mr. Nicol, the book-

seller, 'have you got any money in your pocket?' Mr. N. replied in the affirmative. 'Have you got five guineas? Because, if you have, and will lend it to me, you shall go halves.' 'Halves in what?' inquired his friend. 'Why, halves in a magnificent tiger, which is now dying in Castle-street.' Mr. Nicol lent the money, and Hunter got the tiger."

The almost startling features of his continued enthusiasm and energy are well illustrated by the incident of his appointment with Mr. Thomas, who had recently arrived in London. This young gentleman was told to come in the morning as soon after *four* as he could. "It was summer; Mr. Thomas kept the appointment, and found Hunter, at that early hour, busily engaged in dissecting beetles."

But we must not abuse the reviewer's trust too far by placing any other items of this most remarkable career before our readers. We recommend every one of them to procure this interesting volume for themselves—to read, mark, learn, and inwardly digest its contents; to use it for example and for inspiration; and to transmit it as an heirloom. It is hardly necessary for us to add our congratulations to the author, and, indeed, printer and publisher as well, on the way in which this volume has been composed and placed before the public eye.

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*Text-book of Physiology.* Edited by E. A. Schäfer, LL.D., F.R.S. Volume I. Edinburgh and London: Young J. Pentland. 1898. Royal 8vo. Pp. 1036.

One of the most pressing practical questions of the present day is the unmanageable dimensions to which scientific literature has grown; and in no branch of science is this difficulty more felt than in physiology. It is quite impossible to give in an ordinary text-book any complete account of the innumerable researches which have been published, to discuss with desirable fulness the conflicting views which are held on almost every question, or to even name the authors who have taken part in the different controversies out of which truth is ultimately arrived at. The labour of consulting the original papers is enormous,

and it is one which is impossible except for those who live in large centres and have access to public libraries.

These considerations will ensure a welcome for the great work of which this volume is the first instalment—a work which "is not intended altogether to supersede the consultation of original papers, but which will, it is hoped, reduce the need of it to more reasonable limits, and will, moreover, by the references to literature, which throughout form an important feature of each article, facilitate such study where it is still necessary." Such an end was attained by the publication of Hermann's "Handbuch der Physiologie," the last part of which appeared in 1883. Many of the articles in that work are classical, but much that is in it is now out of date; and as in the interval that has elapsed since its publication, physiology has, perhaps, made relatively greater strides in this country than anywhere else, it is peculiarly fit that the present complete summary of our knowledge should be carried out in England and by British authors.

Professor Schäfer is to be congratulated on the distinguished staff of collaborators he has secured; not only are they all men well versed in science, but each of them has by his own researches enriched that branch of physiology on which he writes, so that in each article we find not only a summary of the work of others, but a critical estimate of this work, together with numerous original observations of great value.

The subjects of generation and of reproduction, as well as the general physiology of the cell, are excluded from the work as being largely morphological, and being treated of in separate and readily accessible text-books.

In the present volume the articles "deal mainly with the chemical constitution and the chemical processes of the animal body, and with those physical and chemical phenomena which are connected with the production and elaboration of the secretions and other fluids of the body. The articles in the second volume will include the mechanics of the circulation and respiration, and of special muscular movements; the general physiology of muscle and nerve; the special senses; and the functions of the central nervous system."

In the volume before us eighteen articles are contained. Two of these are by Professor Halliburton—the Chemical Constituents of the Body and Food; and the Chemistry of the Tissues and Organs. The author, who must be looked on as the foremost British physiological chemist, has enriched the subject of both of these chapters, more particularly the second, with many original and very valuable discoveries. His researches on the proteid constituents of muscle and of many of the glandular organs, his observations on the nucleo-proteids will occur to the mind of every physiologist. His articles are such as might be expected from such a writer—full, accurate, lucid, and abounding with original matter.

The editor, Professor Schäfer, contributes four articles—the Blood; the Mechanism of the Secretion of Milk; Metabolism; and the Influence of the Ductless Glands upon Metabolism and the Internal Secretions. With the subject of the last chapter Professor Schäfer's name is peculiarly associated, but the other chapters are no less written with the hand of a master. Particularly would we refer to the section on metabolism, where this difficult and distracting subject is treated with a fairness and completeness rarely attained. No important facts are omitted, the balance is evenly held between the conflicting theories of the rival schools—chiefly those of Bonn and Munich—and, considering that the article is under 70 pages in length, it must be looked on as a remarkable performance.

An unusual feature of this work is that hæmoglobin is treated of in a section by itself. The numerous remarkable properties of this extraordinary substance, and its peculiar physiological position, existing in the blood, but really belonging to respiration, justify this treatment. The article by Professor Gamgee is one of the most striking in the volume. The author has occupied himself recently with the photographic spectrum of hæmoglobin—that is, the absorption which this substance produces in the ultraviolet portion of the spectrum. This he finds is even more characteristic of hæmoglobin than is the better known absorption in the visible spectrum. Furthermore

in this article a full description is given of the spectrophotometer—an instrument which has already given most important results, and which is destined to still further application in the study of blood and other coloured fluids. The views of Hoppe-Seyler that the colouring matter as it exists in the corpuscles is different from that which can be separated from them, as well as the statement of Bohr that there are several oxy-hæmoglobins, meet with no favour from Professor Gamgee.

Professor Weymouth Reid writes two chapters—A General Account of the Processes of Diffusion, Osmosis and Filtration; and On the Secretion and Absorption by the Skin. We should have wished to see the former subject, particularly the section on osmosis, a little more expanded, and treated more from the physiological standpoint.

Dr. Starling's articles are two in number—On the Production and Absorption of Lymph; and On the Mechanism of the Secretion of Urine. There is no one in this country who has taken so important a part as Dr. Starling has done in the great controversy as to the mechanism of the formation of lymph, which has arisen since the publication of Heidenhain's remarkable work in 1891. His views are well known, and in his article are clearly stated, all fairness being at the same time shown to those who differ from him. As regards the equally vexed question of the secretion of urine, he declines to decide between the Bowman-Heidenhain and the Ludwig schools; but he maintains that "whether we look upon the cells of the convoluted tubules as secretory or absorptive in function, we have at present no evidence that the cellular covering of the glomeruli acts otherwise than passively in the production of the glomerular part of the secretion."

A most exhaustive article on the Chemistry of the Digestive Processes is contributed by Professor B. Moore.

Mr. Langley contributes the article on the Salivary Glands—a subject of which a great part of our knowledge is due to the work of the author.

The chapter on the Mechanism of the Secretion of Gastric, Pancreatic, and Intestinal Juices is by Mr.

Eakins, while that on the Mechanism of Bile Secretion is by Dr. Noel Paton.

An exceedingly good article on the Chemistry of the Urine is contributed by Mr. F. Gowland Hopkins.

Finally, two long articles by Dr. Pembry on the Chemistry of Respiration, and on Animal Heat, are remarkable by the care with which all the facts are collected and arranged, as well as by the statements of the original work done by the author on both of these subjects.

In all the articles the fulness with which the literature is worked up is most noteworthy. The references are given in full, and there is no doubt that the hopes expressed by the editor in his preface will be realised.

The letterpress is illustrated by 92 figures in the text, and three coloured plates of spectra. There are two remarkably good indexes—one of authors, the other of subjects. The way in which the work is brought out leaves little to desire, although, perhaps, a smaller page and a proportionately larger number of volumes might have made the pleasure of reading the work greater. But as it stands the work is one of the highest excellence, and cannot fail to be of the greatest value in serving to spread a really complete knowledge of the present condition of the science of physiology. It is a work of which every Englishman must feel proud, and one which will greatly enhance the already high position which the English school holds in this branch of science.

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*Index-Catalogue of the Library of the Surgeon-General's Office, United States Army.* Authors and Subjects. Second Series. Vol. II. B.—Bywater. Washington: Government Printing Office. 1897. Large 8vo. Pp. 954.

In his letter to General George M. Sternberg, Surgeon-General of the United States Army, presenting the second volume of the second series of the Index-Catalogue of the Library of the Surgeon-General's Office, Deputy-Surgeon-General and Lieutenant-Colonel D. L. Huntingdon summarises its contents as follows:—

"This volume contains 15,732 authorities, representing 6,383 volumes and 14,802 pamphlets. It also contains 5,774 subject-titles of separate books and pamphlets, and 21,725 titles of articles in periodicals."

There is no change in the form of the present instalment of this colossal work. The volume carries us from "B." to "Bywater," so that it is entirely occupied with but one letter of the alphabet.

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*Religio Medici and other Essays.* By SIR THOMAS BROWNE. Edited with an Introduction by D. LLOYD ROBERTS, M.D., F.R.C.P. Revised Edition. London: Smith, Elder & Co. 1898. 8vo. Pp. xxxix + 305.

As the Editor explains in a brief "Foreword," the text of this beautiful edition of Sir Thomas Browne's best-known essays has been carefully revised. A short posthumous tract "On Dreams" has been added. This was originally published in 1835 by Simon Wilkin from the Sloane manuscripts in the British Museum.

The Editor's bibliographical introduction is a fitting tribute to "the learned Sir Thomas Browne, Knt., M.D., late of Norwich," as the worthy old-time physician was described on the title page of an early edition of his works published in 1712.

The contents of the volume before us embrace the celebrated "Religio Medici," "Christian Morals," "Letter to a Friend," "On Dreams," and "Urn Burial." Of the last-named Carlyle says: "The conclusion of the essay on Urn Burial is absolutely beautiful—a still elegiac mood, so soft, so deep, so solemn and tender, like the song of some departed saint flitting faint under the everlasting canopy of night; an echo of deepest meaning 'from the great and famous nations of the dead.'"

"Oblivion," wrote Sir Thomas Browne, "is not to be hired." "The greater part must be content to be as though they had not been, to be found in the register of God, not in the record of man." "Oblivion shares with memory a great part even of our living beings." "There is nothing strictly immortal but immortality." "Life is a pure flame, and we

live by an invisible sun within us." "Happy are they whom privacy makes innocent, who deal so with men in this world that they are not afraid to meet them in the next, who, when they die, make no commotion among the dead, and are not touched with that poetical taunt of Isaiah."

Such are some of the passages which wrung so hearty a mead of praise from Thomas Carlyle. Perhaps a more appropriate quotation for our pages would be this passage from the *Religio Medici*—"I can cure the gout or stone in some, sooner than divinity pride, or avarice in others. I can cure vices by physic when they remain incurable by divinity, and they shall obey my pills, when they contemn their precepts. I boast nothing, but plainly say we all labour against our own cure; for death is the cure of all diseases. There is no *catholicon* or universal remedy. I know but this, which though nauseous to queasy stomachs, yet to prepared appetites is nectar, and a pleasant potion of immortality."

And so we bid farewell to the quaint philosopher of Norwich with the old-world words quoted by himself—"*Vale, vale, vale, nos te ordine quo natura permittet sequamur.*"

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*Archives of the Roentgen Ray.* Edited by W. S. Hedley, M.D., and Sydney Rowland, M.A. Vol. II. No. 3. February, 1898. London: The Rebman Publishing Company.

The present number of this publication, better known by its former title, "Archives of Skiagraphy," opens with an editorial article on the work of the Roentgen Society, which is now in full swing. A detailed account of the proceedings of the Society follows. Two meetings are reported—those of December 7th, 1897, and of January 11th, 1898. There are articles on Contact-breakers by Mr. Ernest Payne, M.A., on a Case of Coxa Vara, by Mr. Wm. Irvine Fortescue, M.B., of Aberdeen, and on "Intensifying" Screens, by Dr. Norris Wolfenden.

Five plates are included in this number of the Archives. Professor Carl Beck, of New York, illustrates a case of

bony ankylosis (wrongly spelled "anchylosis") of the knee in a woman aged 34. Mr. C. Thurstan Holland, of Liverpool, localises a grain of shot in the left orbit by means of a skiagraph. Dr. Hedley describes a "localization" case, in which the leg was converted into a regular pincushion. Another plate shows arrested development of the ulna. But a case of vesical calculus reported by Dr. R. Lane Joynt, of the Meath Hospital, Dublin, bears away the palm for interest. The patient was a boy, aged four and a half years, who was brought to the Meath Hospital presenting symptoms suggestive of calculus. A skiagram was taken, which showed approximately the size of the calculus. It was removed by suprapubic cystotomy, and was found to weigh three drams. The boy left hospital quite well in ten days. The photographic plate was a "Cadett lightning."

"Notes and Abstracts" form an instructive item in the contents. Under the heading, "Still wanted—a Name," we read:—"For X-ray photography the word *Diagraphy* is suggested by Dr. Max Levy, and *Diascopy* for screen work. The word *Actinogram* is sometimes used. For the science of measurement by Roentgen rays Dr. Hoffmann suggests *Skiametry*. Some may prefer *Radiometry*. Whatever word be eventually chosen, it ought to contain a common root and be applicable, by varying its terminations, to screen work, to X-ray photography, to X-ray therapeutics, and to measurements by X-rays."

Surely the root or stem wanted is *ἀκτιν*—from *ἀκτίς*, *a ray*. Then screen work would be *actinoscopy*, X-ray photography *actinography*, X-ray therapeutics *actiniasis*, and X-ray measurement *actinometry*.

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*Spinal Caries.* By NOBLE SMITH, F.R.C.S., Ed.; L.R.C.P., Lond.; Surgeon to the City Orthopædic Hospital, &c. Second Edition. London: Smith, Elder & Co. 1897. Pp. 150.

WE may at once confess to a feeling of considerable disappointment after reading this work of Mr. Noble Smith. We feel that adverse criticism might fairly be made against

more than one section of the book, and the pervading fault is weakness. No one, we imagine, can doubt that the main object which the author had in writing the book was to bring before the profession his "adaptable metal splint," and the value of the book depends on the view which the reader may form of this apparatus. Personally we consider that this or some similar splint is to be preferred to plaster, but we think that no such method of treatment is so satisfactory as that of recumbency and extension where it can be thoroughly carried out.

As regards the title, we are not so satisfied with it as the author appears to be. He writes—"Spinal Caries is a scientific name, and clearly indicates the nature of the affection." If by "caries" we understand "tuberculosis" it does indicate the nature of the disease, but why not then use the latter unequivocal term? We say "unequivocal" advisedly for, we maintain, "caries" is not always used in the same sense. For instance, some writers speak of a syphilitic caries, and by others "caries" is used as a name for only surface tuberculosis of bone. Mr. Watson Cheyne uses the word in this sense, and no one can afford to ignore his authority in connection with this branch of pathology.

The treatment of the pathological aspects of the subject is the element of the book which we had, perhaps, particularly in mind when we described it as weak. In one place the writer declares that "caries is, undoubtedly, essentially a tuberculous disease," but in discussing ætiology he seems to throw doubt on this. He first speaks of general tuberculosis as a strong predisposing cause of caries—a statement which we do not pretend to understand; and then in reference to other cases where "the disease is concentrated in one part," he says—"there is more probability that the active cause has been an injury, whatever the constitutional condition may be." The part taken by injury in the production of a focus of tubercular disease, we think, has been fully and satisfactorily explained by various authors. The supposition that injury in a healthy individual is capable, at one time, of producing those simple inflammatory effects with which everyone is familiar, and at another, effects which we regard as essentially tubercular, seems to us highly improbable. It is,

indeed, equivalent to saying that the same cause, acting under precisely the same conditions, can produce totally different effects. One might almost as reasonably imagine that the same organism might, at one time, produce typhoid fever, at another, measles or scarlatina. Moreover, it is well-known that slight injuries are usually the antecedents of these diseases, graver injuries causing changes, which, however marked, are none the less simple. If injury alone is the cause in the first, we are driven to the absurdity, or what seems to us so, that the greater cause produces the less effect. For these and many other reasons we cannot agree with the author that injury is ever the "active cause," or that the occurrence of the disease is ever independent of an abnormal constitutional state.

The chapter on Operative Treatment is not in all respects satisfactory. The treatment of spinal abscess is now pretty clearly defined, and such being so it seems unnecessary to seriously discuss such an obsolete practice as aspiration. The practice of daily irrigations with carbolic or other lotions implies a greater faith in these necessarily weak antiseptics than most surgeons of to-day would sympathise with. The resort to such a method would usually be regarded as an acknowledgment of failure in the primary operative treatment.

With reference to the dangers prior to the introduction of antiseptics, the author writes:—"If the patient escaped septic contamination then it generally happened that prolonged suppuration occurred," &c. Surely this is a contradiction in terms. Stress is rightly laid on the antiseptic care with which such operations as these should be conducted; but how does the writer reconcile with this the use of "the bristle throat probang" to deal with the walls of "long sinuses?" Again, such a statement as the following, referring to operation on post-pharyngeal abscess, is not to be expected from one who attaches much importance to asepsis:—"Fluctuation may be detected by one finger placed in the wound and another in the throat."

Chapter VII. is devoted to a list of cases. Most of these are very briefly recorded, and some are not of any special interest. Almost all point to the efficacy of the "adaptable metal splint," and are so far important.

The book concludes with a reference to the treatment by forcible reduction. The criticism is neither hot nor cold.

Although we have found somewhat of interest and use in this little book, we do not feel disposed to conclude our review with the words—"no medical man's library can be complete without it."

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*Diseases of Women.* By Arthur Lewers, M.D. Fifth Edition. London: H. K. Lewis. 8vo. Pp. 526.

The fact that this work has passed rapidly through four editions is proof positive of its popularity, and that it does or is supposed to supply a want in medical literature is therefore apparent.

We understand that this book is much affected by medical students, whose ambitions are not infrequently limited by the "pass list" of their final examinations. To them the work seems to have much to recommend it—the letter-press is clear, the binding showy, illustrations sufficiently numerous to break the monotony of reading, and the book itself of a compact, manageable size, enabling it to be easily handled and at the same time to contain all necessary information of a practical nature.

That this, the fifth edition, is in every way superior to its predecessors does not admit of doubt, and yet we cannot but think that it falls lamentably short of what a work of its size might be made.

We have a right to demand of our specialists that a reasonable knowledge of scientific advance, so far as this affects the special branch of each, is forthcoming, and likewise that the capacity be present in them of accurately gauging the importance of contemporary work; similarly, the works produced by them should not be found wanting in either of these respects.

In the book before us the author has not been careful to avoid criticism under these heads, and the conservative nature of the work greatly mars its efficiency. Thus, we find the side position is still recommended for bimanual examination, and the statement made that diagnosis can be made equally well whether this or the back position be adopted.

Needless to say that this opinion will not be endorsed by one in twenty of the leading gynæcologists of the world, and that those holding such views are becoming year by year fewer.

Again, the passage of the uterine sound by touch is minutely described after the method popular twenty-five years ago, at a time when it was customary for the operator to pass the instrument beneath the bed-clothes, and the class of attending students had to take on trust the proceedings adopted for the patients' cure. The author having by this description thoroughly wasted the time of his readers, calmly adds—that should the operation be carried out as described, there is considerable danger of carrying septic matter from the vagina into the uterus and setting up an inflammation that may prove dangerous. The uterine sound, as our readers are aware, is an instrument of very limited value now-a-days. It is seldom passed until the position of the uterus has been ascertained by means of the bimanual examination, and without the aid of a vulsellum fixed to the anterior lip of the cervix, and a posterior vaginal speculum. Nor are we in agreement with the advice that the sound be disinfected by being dipped in 1 in 1,000 corrosive sublimate solution. This antiseptic is easily decomposed by most of the commoner metals, and is calculated to inflict much greater injury on the sound than on the germs which it carries.

Directions as to the method of passing a catheter are omitted, and the use of celluloid instruments is recommended to the exclusion of others. Now, it does not fall to the lot of every young practitioner to have had opportunities of passing a catheter; hence the importance of a detailed description. Again, why is all mention of glass omitted as a substance suitable for catheters? These will not break in use; can be placed in water at any temperature without fear of injury, and are obtained at a price so low that any other material must appear dear by comparison.

On page 44 two inaccurate items of information are vouchsafed—(1.) That Hegar's dilators will not stand boiling; and (2.) that catgut may be sterilised by dry heat at a temperature of 150° F.

Hegar's dilators become straightened out by being boiled.

and this, which in nowise impairs their efficiency, is the only change they undergo. As regards catgut, such a temperature as that named is totally inefficient, and a dry heat of something over 350° F. is required for its sterilisation. This temperature will, moreover, completely destroy the catgut unless certain precautions are observed. It is, therefore, a preferable plan to allow the gut to boil in super-heated alcohol.

Fig. 22 represents a dysmenorrhœal membrane and has figured as such in earlier editions, yet the author quotes Mathews Duncan as stating that the picture represents an early abortion, a view to which most gynæcologists will subscribe.

The author says that "rupture of the perinæum only facilitates prolapse; it is not an exciting cause." In this we cannot concur. Rupture of the perinæum is an exciting cause of rectocele, cystocele, and retroflexion, forerunners and close associates of procidentia uteri. Amputation of the cervix is still lauded as the operation applicable for many cases of cancer of that structure. Needless to say that extirpation of the uterus is a more far-reaching and preferable operation.

When writing of pelvic peritonitis the author states that it may arise from exposure to cold, this giving rise to corporeal endometritis, and by extension of the latter inflammation to peritonitis. Again, we read that regurgitation of menstrual blood can account for this inflammation when the flow is of small amount, or should the "quantity of blood in such cases be considerable, we have what is known as 'pelvic hæmatocele.'"

It is hard to say which of all these statements is the most inaccurate. Endometritis, if not due to germ invasion, never gives rise to peritonitis by extension. Hæmorrhage into the peritoneum, if of small amount, is quickly absorbed, and gives no indication of its presence; and, lastly, it is a circumstance of grave doubt whether a pelvic hæmatocele can exist, apart from operation, save as a result of tubal pregnancy.

It is needless to go further into the criticism of this work. It contains, on the whole, as is to be expected, sound information; but we hold that it is unpardonable to let appear in a fifth edition inaccuracies which might easily be passed over were this book coming out for the first time.

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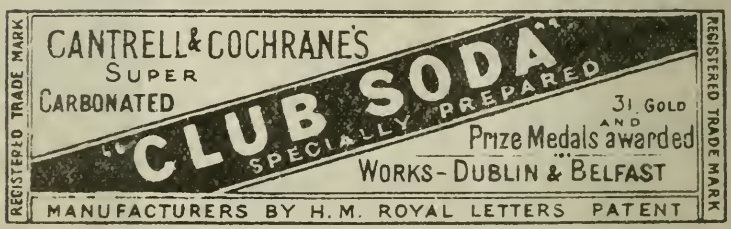


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# PART III.

# MEDICAL MISCELLANY.

*Reports, Transactions, and Scientific Intelligence.*

*On the New Tuberculin Preparation.* By Geheimrath Prof. Dr. Robert Koch. Translated from the *Deut. med. Woch.*, No. 14, 1897, by H. E. Littledale, M.B., House Surgeon, Sir P. Dun's Hospital.[a]

Since my publications on tuberculin I have carried on investigations on the employment of cultures of tubercle bacilli for the treatment of tuberculosis uninterruptedly, and believe that I have come to a sufficient conclusion with them to be able to publish the results of these investigations.

The complete product of the work carried on throughout these years will appear simple, and in many respects positively obvious; but anyone who has worked on tuberculosis knows how extraordinarily tiresome and tedious such investigations are, and how they often put one's patience and endurance to the hardest test. I wish to make this observation here chiefly in thanks to Dr. M. Beck, who has assisted me at my work in an untiring and trusty manner.

The employment of bacteria and their products for curative and prophylactic purposes always depends on a kind of immunisation. I think it is therefore necessary for me to give a brief and accurate definition of my position in this matter to meet questions likely to arise, and to avoid misunderstanding at a future period.

Originally immunity against infectious diseases was considered something simple and indivisible, but by degrees people have come round to the view more and more that immunity may certainly be a simple matter, but is not necessarily so, as it may consist of two components, perhaps even several in combination. This can best be explained by some examples. As Behring and Kitasato have shown, animals can be immunised against tetanus; and for this purpose culture products—that is, the products of tetanus bacilli,

[a] Read before the Dublin University Biological Association in December, 1897.

which are soluble in water—are employed, amongst which the tetanus poison is found. Against this poison, and in fact against very large doses of it, animals have been protected—certainly only for a limited period. The immunisation has no influence on the tetanus bacteria themselves, they grow in the body that has been immunised further and without check so long as the opportunity is given them to do so, as they require a medium quite free from oxygen owing to their method of growth.

We have here to deal with a pure and simple case of poison immunity; and when this artificial immunity has disappeared at the end of some weeks, it may happen that the tetanus poison, which the tetanus bacilli always keep on making, ceases to be destroyed in the body of the immunised animal, and it forthwith dies of tetanus without requiring a fresh infection with the bacilli. We find the reverse conditions in the case of cholera and typhoid fever. In these diseases the investigations of Pfeiffer have proved that animals immunised with fresh agar cultures are actually protected against the living bacteria, but not against the poison they produce. The living cholera and typhoid bacteria die in a surprisingly short time in the bodies of animals so immunised; but we have not yet succeeded in immunising animals against the actual poison beyond a definite dose. Here then the immunity is purely a bacterial one—that is, it is directed exclusively against the bacteria themselves.

The ideal immunisation will ever be one which protects the bodies of animals, in the case in point mankind, against all the injurious effects which pathogenic micro-organisms bring with them, and not against only one of them.

These conditions play a large part also in the case of tuberculosis. It would certainly at first appear, in the case of tuberculosis, as if no immunity ever arose, as it may last for years in man without the susceptibility to it ever decreasing. Even in the cases where a cure takes place, the individual has not become immune against a fresh invasion of tubercle bacilli, but is, on the contrary, as experience teaches, rather more susceptible to a fresh tubercular invasion. There are, I admit, indications which advocate the fact that under certain definite circumstances a sort of immunisation can be recognised in tuberculosis. I find these indications in the observations one can make in miliary tuberculosis as seen in man, and in experimentally produced tuberculosis in guinea-pigs. In such cases there usually occurs a stage in which the tubercle bacilli disappear, though at the beginning they were present in large quantities, so that one has to search very carefully

to find any trace of them at all. This is very striking, for we shall see later on that when tubercle bacilli are experimentally introduced into animals they take an extraordinarily long time to become absorbed: so in the cases mentioned there appears to be actually an immunisation process, and, what is more, a bacterial one. Unfortunately it comes too late to be of any use to the organism concerned.

It was these observations that induced me from the very beginning to search without intermission for a method that would permit of this condition of immunity being carried out in tuberculosis, and in an early stage when it might be of some use.

The two processes that I have spoken of have one thing in common—namely, that the body is flooded with tubercle bacilli in a short time. This very fact also appears to me to offer an explanation why a pronounced state of immunity does not occur in tuberculosis under ordinary conditions.

Tubercle bacilli usually behave in such a way that they only grow in small numbers and very slowly in the tissues of the human body; they are generally surrounded by necrotic tissue, and it is only after a long time, when they have actually died and probably undergone complex chemical changes, that they come to be absorbed. Where tubercle bacilli grow luxuriantly and in large masses, as, for instance, in cavities and on the surface of mucous membranes, they are cast off unchanged and not absorbed at all; so that under such conditions no immunisation can take place. Immunisation can occur then only when numerous tubercle bacilli spread themselves rapidly thoughout the entire body, and come into reciprocal action with the living tissues, as in miliary and guinea-pig tuberculosis.

To get an artificial immunity relative conditions must be sought after which are as nearly like those described as possible; but downright insuperable difficulties are opposed to this. All attempts to bring about the absorption of living and unaltered or even dead tubercle bacilli in somewhat large quantities, from the subcutaneous tissue, from the peritoneal cavity, or from the circulatory system, have failed in my hands, and just the same has been the result with many other investigators.

Dead tubercle bacilli when subcutaneously injected produce abscesses without fail, and they can be proved to be present in the resulting abscesses in large quantities for months after, and stain readily. When introduced into the peritoneal cavity of animals they are better absorbed, and I have succeeded in this manner in obtaining distinct immunity; but at the same time circumscribed inflammations occur with such sequelæ as adhesions between the

abdominal organs, kinking and occlusion of the gut, &c., to which a large percentage of the animals are sacrificed.

Dead tubercle bacilli injected into the circulation of animals, for instance rabbits, produce in the lungs exactly similar nodules as living ones, and one can find the unaltered bacilli in the lungs even after a very long time; so here also absorption does not go on in the desired manner.

As these facts proved that tubercle bacilli in an unchanged state were useless for immunising purposes, I tried to make them absorbable by the action of chemicals. The only method that was at all of service in this respect consisted in treating the tubercle bacilli with dilute mineral acid or strong alkalies at boiling point. In this way one succeeds in altering the tubercle bacilli in such a way that they become completely absorbed in large masses from the subcutaneous tissue, yet it takes a long time. Not the slightest immunity was obtained in consequence, so we must assume that this chemical action brings about too extreme a change in the substance of the bacilli, and destroys their immunising qualities.

As there was nothing to be gained in this manner, I proceeded to extract the absorbable constituents from the tubercle bacilli and use them for immunising purposes, and I gave up using the whole bacilli.

At first I sought to do this with glycerine extracts, and this led to the discovery of tuberculin. Tuberculin has the extremely valuable property of setting up a characteristic reaction when introduced subcutaneously, and in very small quantities, into men or animals suffering from tuberculosis. To begin with, this peculiarity can be turned to account in recognising tuberculosis in the earliest stages—that is to say, at a time when the physical diagnosis leaves one in the lurch, and, of course, just at the time when prospects of therapeutic success are greatest.

The employment of tuberculin as a help to diagnosis, on which I laid the greatest stress in my first publication on tuberculin, has justified itself more and more in the course of time. It is used at the present day in most civilised communities for the early diagnosis of tuberculosis in cattle (Perlsucht.)

The systematic struggle against this far-spread disease is founded on it, and has already led to very good results. The fear that tubercle bacilli could be set in motion and carried away to healthy parts of the body in consequence of the reaction, has been proved a false one in the many thousand injections of tuberculin which have been made in cattle for this purpose; and this is in full agreement with my own experience in more than 1,000 cases where tuberculin

has been employed for the early diagnosis of tuberculosis in man. Dr. Nietner, Staff Physician, will shortly give an exhaustive report on this matter. Moreover, in these cases nothing could ever be recognised to support the view of mobilisation and general diffusion of the tubercle bacilli.

In the face of such experience the absurd prejudice about tubercle bacilli being set in motion ought finally to be abandoned, and tuberculin be turned to account in the struggle against human tuberculosis on the analogy of the fight against this disease in cattle. I can only here repeat what I have said on a former occasion, that in tuberculosis prophylaxis is of infinitely more importance and benefit than all therapeutics.

The further value of tuberculin consists in its employment for treating tuberculosis. Since after every tuberculin reaction an unmistakable improvement occurs, the obvious thing to do was to carry on the reactions so long as any improvement was obtained with it; but this cannot be carried on indefinitely, as the capability to react gradually disappears, and with it, of course, the action of the tuberculin, and finally there comes a stage of complete immunisation against tuberculin which may last some months. On the bacilli themselves the immunisation has no influence; it is purely a matter of toxin immunity and not bacterial. Unfortunately the capability to react has already disappeared before a complete cure has resulted. Relapses occur which have to be treated afresh with tuberculin reactions as soon as the reaction capability re-establishes itself. In this way, with the necessary skill and patience, one can obtain a cure, or at least considerable improvement, if not in all, certainly in very many cases of uncomplicated tuberculosis. I therefore would regard tuberculin as the best means against tuberculosis at present at our disposal, had I not succeeded in the mean time in producing a really bacterial-immunising preparation from cultures of tubercle bacilli. It was naturally ever my wish to attain to such a bacterial-immunising substance after the discovery of tuberculin.

Amongst the many investigations with that object in view which were later abondoned, I should like to mention one here which kept me busy for more than a year, as it is very instructive in many respects. It is a case of a preparation which was obtained by extracting the tubercle bacilli with a 10 per cent. normal caustic soda solution. The bacilli were well mixed up with the solution, which was let stand for three days at room temperature and frequently shaken up, then the supernatant fluid was filtered through filter-paper, and finally neutralised.

The fluid obtained in this way was clear, with a faintly yellow colour, but it was not quite free from tubercle bacilli, as it contained enough for from five to ten always to be visible in the microscope field of an ordinary cover glass preparation. However, they always lay separately, never in clumps. These were obviously tubercle bacilli that were quite certainly killed, as I established in previous investigations that they were dead after being 12–15 hours in a 10 per cent. normal caustic soda solution. This preparation was styled for short TA, because of its being an alkaline extract. Investigations carried on with this TA showed that it produced in very small doses quite similar reactions to tuberculin, only the reactions lasted somewhat longer—the reaction capability also lasted longer—but the main point was that the results obtained with it proved to be more permanent than those obtained with tuberculin; relapses occurred less frequently, and at a later period. However, an objection to this preparation presented itself which finally compelled me to give it up. After a certain dose—a rather large one, I admit—abscesses occurred at the seat of injection which were completely sterile, and could be caused only by the preparation containing dead tubercle bacilli. The fluid was, in consequence, filtered through earthen filters, and the bacilli thus completely removed from it. On the surface of the filter there remained behind not only the bacilli, but a certain quantity of colloid substance as well, and it was soon proved that the filtered preparation no longer produced abscesses, but it was also no longer superior to ordinary tuberculin in activity. As the preparation also did not keep well and had always to be made fresh, I have finally given preference to the glycerine extract tuberculin, which has extraordinary keeping properties.

The fact of abscesses occurring regularly after a certain dose of TA appears to me a very important one. It teaches us, for instance, that a toleration—an immunisation against tubercle bacilli in their unchanged condition—is not to be expected in case of subcutaneous injection. At the beginning the smallest doses were injected which could only contain isolated bacilli, and were quite well absorbed; then they were gradually increased until the larger abscess-producing doses were reached, which happened between the 20th and 30th injections. If toleration of tubercle bacilli in large doses were possible, it should have happened here; but it did not, manifestly because the subcutaneous tissue, though in a condition quite capable of overcoming small quantities of dead tubercle bacilli, is absolutely incapable beyond a certain quantity. If one wished to introduce a large quantity of tubercle bacilli into the body through this channel, one would have to divide a number of injections over a corresponding

number of places in the skin, which, for practical reasons, is impossible.

This experience gained with TA. gave me the idea of breaking up the tubercle bacilli, by whatever mechanical means was possible, to such an extent that they would be in a better condition for the absorbing elements of the body to attack, seeing that they are never absorbed under any circumstances in the whole state. I was, moreover, especially encouraged in this idea by observations which I had made in reference to the chemical behaviour of tubercle bacilli.

In the above-mentioned attempts which I made to bring tubercle bacilli into a state of solution by means of mineral acids and strong alkalies, I had discovered that tubercle bacilli contain two peculiar chemical bodies which both belong to the free fatty acids—the one fatty acid is soluble in dilute alcohol, and is easily saponified with caustic soda; the other is soluble only in boiling absolute alcohol or ether, and saponified with great difficulty. Both take up the so-called tubercle bacilli staining—that is, they become coloured intensely red with carbol-fuchsin, and retain this colour after treatment with dilute nitric acid and alcohol. However, since by this treatment the first of the two fatty acids is dissolved in the alcohol, and is extracted from the object under microscopic examination, it is only the second fatty acid, which is insoluble in cold alcohol, that remains in the tubercle bacilli when they are submitted to the staining process. This latter acid fixes the colouring matter, and is therefore the carrier of the peculiar tubercle bacilli stain. One can extract the fatty acid slowly out of the tubercle bacilli by means of hot caustic soda solution, and can easily follow the process of expulsion with the help of the microscope. The fatty acid leaves the bacillus as small drops, which can be stained, and which flow together into larger drops, while the bacilli keep their form from the beginning, but do not take up the specific stain of tubercle bacilli any longer, but only the same as other bacilli. These fatty acids produce a continuous layer inside the body of the bacillus, as the microscopic picture of the stained bacilli teaches us. They protect it from external attacks, and are the cause of its being absorbed with such difficulty.

Now, if tubercle bacilli were to be brought into a condition in which they could be absorbed, such a result must depend on the destruction of this protecting membrane.

The first attempts to do this failed entirely. All the grinding and crushing of tubercle bacilli with and without the addition of hard pulverising materials left them unchanged; and it was only

when I took well-dried cultures and worked them about for a long time in an agate mortar with an agate pestle, without adding anything to them, that I could recognise a diminution in the number of stainable bacilli, until finally only a few were left. To make certain and eliminate these as well, I suspended the substance obtained in this manner in water and centrifuged it. With the help of a very powerful centrifuge—4,000 revolutions in the minute, carried on for one-half to three-quarters of an hour—the fluid was separated into a whitish opalescent, but perfectly clear, transparent upper layer, which contained no longer any tubercle bacilli, and a slimy firmly adherent sediment. This latter was again dried, worked up in a mortar, and centrifuged as above. It also gave a clear upper layer and a firm sediment. This manipulation could be carried on till finally almost nothing was left except the impurities originally present in the culture, and such as got in accidentally later, such as shreds of cotton wool, dust, &c.

In this manner the entire mass of tubercle bacilli culture could easily be transformed into a series of perfectly clear fluids.

This experiment, which anyone can repeat for himself without difficulty, was the starting point for my further work.

First, I convinced myself by experiments on animals, and later on human beings, that the preparations obtained in this way were completely absorbable and never produced abscesses, provided they were well centrifuged and no longer contained any stainable tubercle bacilli. It turned out soon after, however, that only the first fluid differed in an important way from the succeeding ones; the second and successive fluids did not differ from each other. I have, therefore, called the upper layer, after the first centrifuging, Tuberculin O (TO for short); the residue left after the first centrifuging, and that has been further worked up, I have called TR.

Microscopic examination of the original material after it has been worked up shows that the bodies of the tubercle bacilli are not transformed into a uniform substance. One can see no longer any red-coloured masses after staining with carbol-fuchsin and counter-staining with methylene blue, nor are the small drops of fatty acid present; on the contrary, one finds in the microscopic field pale-coloured cloudy-looking areas surrounded by a border of dark blue drops—that is, the latter are collected together at the edge.

(*To be continued.*)

*Surgical Treatment of Gastric Ulcer.* By M. Dieulafoy. Translated by G. M. Fox, M.D., F.R.C.S.I.; Hon. Fellow of the S. S. and Gynæcological Associations; Member of the Society of Anæsthetists, London; Surgeon to the Whithworth Hospital, Drumcondra.

At a meeting of the Academy of Medicine of Paris M. Dieulafoy read a paper on surgical intervention in ulcers of the stomach.

On the 13th November, 1895, there came under his care a man, bloodless, pale, with cold extremities, who had vomited two or three pints of blood. The case was diagnosticated as ulcer of the stomach. The patient had four successive attacks of hæmatemesis, in which he lost more than four pints of blood in a few hours. He was treated with an ice poultice to the region of the stomach, ergotine, milk, and soforth. In spite of all the treatment the patient died, and the autopsy revealed a large ulcer, such as Cruveilhier so graphically described. It was not until we had carefully washed the mucous membrane of the viscus that we discovered a small ulcer at the cardiac extremity, on the peritoneal extremity of which we found a small arteriole, into which, with some trouble, we could insert a pin point. This arteriole passed through the ulcer, and its walls finally became diseased and ulcerated, and from the ulcer so formed came the blood-flow that killed the patient.

M. Dieulafoy considers that if he had cut down on and opened the stomach he could have caught the bleeding vessel, and saved the life.

On the 13th of October, 1897, there came to his care a young man, pale and bloodless, who complained that in the crowded street he had had attacks of vertigo, and had vomited quantities of blood. He had had three consecutive attacks of hæmatemesis. M. Dieulafoy was fully decided to open the stomach, but the patient raised objections to the operation, and begged for its postponement. The usual remedies—the local application of ice, ergotine internally, and milk diet—were now tried. For the succeeding eight days there was no return of the bleeding, but the patient rejected the milk. On the morning of the ninth day he had a terrible attack of hæmatemesis, and M. Dieulafoy, on arriving at the hospital, found his patient moribund.

At his repeated and urgent solicitation M. Cazin opened the abdomen, drew out the stomach, and, finding nothing abnormal, replaced the viscus, unwilling to proceed further in the operation. Again M. Dieulafoy urged the opening of the stomach, and

this time M. Cazin made an incision 11 centimetres in length. Nothing was found except some liquid, a little blood, and some ulcers. Finally, by careful examination and cleaning of the mucous membrane of the viscus, a small bleeding point was found. M. Cazin closed the bleeding point with three fine sutures, and closed the opening in the wall of the stomach and abdomen. Twenty days afterwards the patient was completely cured.

Here, writes M. Dieulafoy, are two cases precisely alike. In one the patient dies, not having been operated on; in the other an operation is performed, and the patient lives.

In the discussion which followed M. Michaux reported a case of a young woman who suffered from severe attacks of hæmatemesis, which brought her to the point of death. After her last attack he performed a laparotomy, and examined the exterior of the stomach, but, finding nothing abnormal here, placed it unopened in the abdomen, and closed the abdominal wound. Soon after this a severe attack of melæna killed the patient. On examination a small bleeding point on the mucous surface was found to be the source of the hæmorrhage.

M. Gilbert reported a case in which, at his request, M. Hartman performed a gastro-enterotomy. The lesion was not discovered until after death, when it was discovered to be a superficial ulcer of the mucous membrane.

The author concludes by urging the operative treatment of hæmatemesis, due to simple ulcer of the mucous membrane of the stomach, as the only rational and successful method in such cases.

The radical measure recommended by M. Dieulafoy was not unanimously accepted.

M. Hayem drew attention to the fact that not infrequently in young people these attacks of hæmatemesis cease, even when they have been so severe as to menace the lives of the patients. As a resource he mentioned transfusion of blood, by which treatment he had successfully treated two moribund cases. He also referred to subcutaneous injections of salt and water and artificial serum as trustworthy remedies.

M. Lanceraux pointed out that hæmatemesis is sometimes due to hepatic derangement.

M. Fournier called attention to syphilis as an exciting cause for hæmatemesis, and related some severe cases successfully treated with iodide of potassium.

M. Cornil, who with M. Ranvier wrote the well-known work on pathology, confirmed M. Fournier as to the influence of syphilis in producing gastric ulcer.—*Gazette des Hôpitaux.*

# ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—Edward H. Bennett, M.D., F.R.C.S.I.
General Secretary—John B. Story, M.B., F.R.C.S.I.

## SECTION OF ANATOMY AND PHYSIOLOGY.

President—D. J. Coffey, M.D.
Sectional Secretary—A. Birmingham, M.B.

*Friday, February 4, 1898.*

The President in the Chair.

### *Exhibits.*

Professor Fraser showed (*a*) a specimen of left superior cava; (*b*) a heart in which a large hepatic vein opened into the coronary sinus; (*c*) cervical ribs; and (*d*) microscopic specimens showing a "pressure pouch" in a sheep embryo.

Dr. H. C. Tweedy exhibited a boy with a supernumerary digit attached to his right thumb.

Dr. R. Travers Smith exhibited a man of over fifty years of age, with complete absence of both pectoral muscles on the right side.

### *The Teaching of Histology.*

The President, having thanked the Fellows of the Academy for the honour they had conferred on him in electing him President of the Section, said that as he was about to deal with a subject of a controversial character—namely, the Teaching of Histology—he had thought it better to treat it in a paper and invite discussion, rather than to make it an address. He thought it was the experience of most teachers of histology that a few months after the student had gone through his practical classes and lectures in this subject, the chief result which remained to him was that he possessed a more or less accurate knowledge of the structure of the tissues and organs, and that he had extended his knowledge of anatomy in the aspect of minute structure. In addition, he has become fairly skilled in the use of the microscope, and he is able to stain and mount a section. The more clever students

possess, as well, a knowledge of some special methods—those, for example, which are used in the study of the nervous system. But in the great majority of cases the student is quite incapable of making anything like a complete preparation of a tissue or organ for microscopic examination. He has forgotten what has been described to him of the *technique* of fixing, hardening, imbedding, &c., because he has never practised these processes for himself. He has been taught histology rather as an adjunct to anatomy, and not at all as a practical method of study and investigation. He has left the laboratory stored with valuable information indeed, but devoid of a practical knowledge, which could be of the greatest use and interest to him in the study of pathology, or in application to many branches of biological science. Again, the value of microscopic methods in teaching physiological chemistry is lost sight of. Micro-chemical methods could be made to very effectually complete this study, leading to a more comprehensive grasp and to more precise and practical knowledge. Without attempting anything like a course of micro-chemistry, a properly systematised course of histology would obviously include, in the study of the action of the ordinary re-agents, so many chemical demonstrations as to make the course a valuable help in teaching and learning physiological chemistry. It seemed to him most desirable, then, that the histological teaching should be so conducted as to make it more useful on the physiological side, as well as to make it thoroughly practical, so that the student will leave the laboratory equipped with something more than information—viz., a method of investigation. How can this be done? By extending the present course a little, he thought, and devoting say one-third of the whole to the study of the cell. Using the magnificent material at our disposal in almost all arthropod animals for a complete demonstration—first, of structure and of the action of the various re-agents employed in fixing, hardening, &c., then of staining, methods which would naturally be followed in investigating cell structure—our students would be taken over the whole field of histological *technique* and incidentally made acquainted with the methods and results of micro-chemistry. Histology would be taught in the rational way, beginning, so to speak, with its alphabet, and the gain to the student from all points of view would well be worth the additional labour—not very great—which it might impose on him.

Professor W. H. Thompson said he was sure that there could be no two opinions as to the advisability of giving students a course of cytology; but when he came to think of the already

pretty severe course of histology, together with practical physiology, which the ordinary medical student had to acquire in one or two years, he shrunk from it. He thought rather that it was the duty of the zoologist and botanist to teach the students cytology, and pass them on to the teachers of histology to be taught human histology.

Professor Fraser said that he had no doubt that the teaching of the subject would remain in possession of the histologist, and would not be undertaken by the anatomist, botanist, or zoologist. With regard to adding on to the ordinary histological course a cytological one as well, and asking students in a short time to know so many subjects, and conduct what would practically be more or less original investigation in histology, he was afraid that the ordinary student had not the time or the opportunity to do those things.

Professor McWeeney said it was the duty of the biologist to teach the student the structure and the properties of the cell. The psychological part of the work would thus be done in the pre-human-anatomy stage—that was, in the biology stage. For students who did not take out such a course of biology what he would urge was an attempt, on the part of the teacher of histology, to secure, by the better fixation of the tissues, a more accurate idea for the student of the real structure of cells, and, by higher microscopic powers, to get him to understand better what were the component parts of a cell. He would also suggest that the sections be cut of extreme thinness, and that the principles of staining be explained to the student. As regards the study of karyokinesis, pieces of embryonic organs taken at the proper time, and fixed in Flemming's or Hermann's solutions, would probably show the student almost every stage of mitosis.

Professor Scott said that what frightened him most in what Dr. Coffey said was the enormous length of time required to teach the things that he wanted. No doubt all these subjects were of considerable importance, but there was only a short three months in which to get through the organs of the body under the present conditions. If the course were extended he was afraid that they would have more than it was possible to do in the time.

Professor J. M. Purser said that Dr. Coffey spoke of learning histology as if it were like learning to read, but he thought it would be rather better explained if it were likened to the way in which they learnt to talk. They learnt words as a whole first, and he thought that in learning histology it was a great deal better to take up the science in the order in which the knowledge of it had been gained, and

the last part gained was the knowledge of the cell. Some speakers spoke about how students should be taught the structure and the constitution of the cell, but he (Professor Purser) did not think that anyone present would venture to say what was the structure of a cell. Fixing and staining methods were very difficult, and for these and other reasons he thought that to begin with cytology would be to begin at the wrong end.

The PRESIDENT, in reply, said that he had not suggested that an extra course of cytology should be added to students, but what he did suggest, and still believed possible, was that a portion—and that a very large portion—of the present histological course might be devoted to the study of the various histological *methods*, applying them to the cell, not taking the study of the cell in any other sense than to utilise it to teach the student methods; and in this way sufficient interest and knowledge would be gained to enable students afterwards to follow histological subjects for themselves. Let them have a sufficient knowledge of method, and of the meaning of method, and with that he thought students would have learnt a good deal of physiological chemistry.

*The Effects of Peptones and Albumoses on the Kidney.*

PROFESSOR W. H. THOMPSON gave a preliminary communication dealing with the influence of peptones and albumoses on the kidney when injected into the circulation. The following is a short summary of the results at which he has arrived:—(1.) These substances do not exert so great an influence on the walls of the kidney blood vessels as they do on those of other splanchnic blood vessels. (2.) They cause a marked increase in the secretion of urine, the maximum occurring during the second hour after injection. (3.) The urine secreted is dilute, its percentage of urea and total nitrogen being diminished. (4.) The total amount of urea and nitrogen is notwithstanding considerably increased. (5.) Part of the peptone (or albumose) is excreted during the first hour after injection, but the greater part appears to be retained. The amount so retained, however, is not sufficient to supply enough nitrogen for the increased output of urea and other nitrogenous compounds. Professor Thompson pointed out that these results were in accordance with what we already know of the diuretic influence exerted by proteid food stuffs, and also with the period after injection at which their maximum effect is produced.

PROFESSOR PURSER thought that the increased secretion of urine was due to a specific action of the peptones on the cells of the kidney, and, if so, one would suppose that more of the peptone

ought to undergo secretion than had actually been the case, for it appeared that the excretion of peptone was completed in the second hour. It was clear that this substance must act chiefly on the blood-vessels of the intestine, and there must be a great difference in the structure of the blood-vessels of the intestine and the blood-vessels of the kidney if the apparatus in the kidney was so slightly affected by the peptones, whereas the tone of the vessels in the intestines is so completely changed. This, he said, was a very interesting point as to the relation between one kind of blood vessel and another.

*The Larynx in Marsupials, Cranio-cerebral Topography, &c.*

Professor J. Symington—

(*a*) Described the peculiarities of the larynx in certain marsupials and illustrated his communication by a series of micro-photographs of sections of the larynx and the neighbouring structures, chiefly from pouch specimens.

(*b*) He exhibited a series of scapulæ to show the mode of ossification of its coracoid elements and discussed their morphological significance.

(*c*) He also gave a communication on a method he had adopted for demonstrating the relation of the skin and skull to both the external surface and the interior of the brain.

The paper was illustrated by specimens and a series of photographs.

Professor Cunningham said that he had listened to Professor Symington's papers with the greatest interest. He thought that the specimens which he had shown were probably the most beautiful specimens of cranio-cerebral topography he had ever seen. He (Prof. Symington) was perfectly right in saying that the surface should be always combined with the interior, and by his method he was able to do this. Formalin was of enormous help in such work. He concluded his remarks by expressing his appreciation of the way in which Professor Symington had fulfilled the duties of President of the Section for the last two years.

*Shape and Position of the Bladder in the Child.*

Professor Birmingham's paper on the shape and position of the bladder in the child was, owing to the advanced hour, taken as read.

The Section then adjourned.

## SECTION OF STATE MEDICINE.

President—H. C. Tweedy, M.D.
Sectional Secretary—Ninian Falkiner, M.B.

*Friday, February 18, 1898.*

The President in the Chair.

*The Housing of the Poor in Dublin.*

The President in his opening Address called attention to this subject. [The paper will be found at page 289.]

*Animal Vaccine, with Lantern Demonstrations.*

Dr. Knox Denham stated that he had come to the conclusion that the bitterness of the outcry against vaccination, both in the present and in the past, would have been greatly mitigated had the operation of vaccination been performed in every case with the same care and attention to asepsis that are used in other surgical operations. He (Dr. Denham) being the director of the only calf-lymph institute in Ireland, and having visited the principal stations at home and abroad, wished to lay before the members of the Section some of the results of his experience. He believed that the best form of calf-lymph was that made in a glycerinated emulsion, glycerine being in every way preferable to either lanoline, vaseline, or lymph in the dried state, as on ivory points. Not only do the experiments made by Professor McWeeney at the Calf Vaccine Institute prove this, but Dr. Denham threw on the screen a series of plate cultures made by Dr. Blaxall, which clearly demonstrated that although numerous extraneous microbes exist in all fresh calf-lymph, storage of glycerinated calf-lymph from four to six weeks causes the total disappearance of extraneous microbes, the activity of the vaccine remaining perfect, whereas, with lymph treated with lanoline or vaseline, the original colonies of microbes continue rapidly to increase with the length of storage. Now that it was possible to produce a vaccine lymph active in its vaccine properties, yet otherwise sterile, all the objections of those who assert that in vaccination we introduce noxious matters into the arms of their children, other than vaccine lymph, are overcome. Dr. Denham then gave an account of the various processes used by him in the manufacture of calf-lymph in Dublin. He attached great importance to the advice of Mr. Freeman, F.R.C.V.S., in the selection of perfectly sound calves. This portion of the paper

was illustrated by a number of lantern slides, showing the different steps. He stated that no antiseptic of any kind is used, asepsis being obtained by the abundant use of sterilised water, scrupulous cleanliness through boiling of all instruments and corks, and the sterilisation of the capillary tubes in a hot air steriliser.

Dr. A. Nixon Montgomery asked Dr. Denham if he had found the same organisms in clear vaccine lymph (humanised) when taken from normal eighth-day vesicles? Dr. Denham had stated that when the lymph was taken directly from the calf it was swarming with these organisms, and yet, when introduced into the system of a child, it was perfectly active so far as vaccination went, and no untoward results followed. Dr. Montgomery thought it strange when so many organisms were in fresh calf-lymph that no effects should follow as a consequence of their presence. He had been using vaccine lymph (humanised) for the last 28 years with perfectly satisfactory results as regards the production of typical vaccine vesicles which ran a normal course, and were not followed by evil consequences, either present or remote; one result of carrying out the arm-to-arm method was that he had never seen a primary case that was insusceptible to successful vaccination.

Dr. Donnelly thought that Dr. Denham had demonstrated that by keeping lymph a good while in glycerine a good many organisms were removed. During the epidemic of small-pox nearly all the bad arms, he thought, were due to calf-lymph. At first during the epidemic the calf-lymph gave good results, then a crop of cellulitis, then a number of curious abortive vesicles, so that if they had now calf vaccine free from the organisms which gave rise to cellulitis, it was a good thing to remove the prejudices from the public mind.

The Registrar-General said that although vaccine devoid of extraneous organisms was introduced into the system, yet there was a class of people who were completely devoid of common sense, and who would probably never be convinced that vaccination was of any use. He thought that they were greatly indebted to Dr. Denham and several others for promoting the preparation and preservation of lymph in its present form. He stated that Dr. Purcell had used glycerine as a means of preserving his lymph for the last twenty years or more.

Dr. Doyle said that a great many of the bad results following vaccination in bygone days were due to the knives and needles used, and not to the lymph. With regard to the micrococci demonstrated by Dr. Denham, he (Dr. Doyle) thought they were moulds and nothing else. He would be very nervous about using

any calf-lymph in which he saw such organisms. There were non-pathogenic organisms which were said to be harmless, but did they really know if this were so? Such micro-organisms paved the way for the entrance of pathogenic organisms by rendering the tissue dead, and thus opening the way for the pathogenic organisms. How easy it would be to produce a small portion of dead tissue by the incision, and prepare a way for deleterious organisms. Last year he vaccinated a child with French lymph. On the sixth day the child became very heavy, and died subsequently on the fifteenth day of tubercular meningitis.

Dr. Horne said that undoubtedly a very strong opinion existed in England against the use of humanised lymph—so strong, indeed, that a Royal Commission had been formed which had held very strong opinions practically in favour of calf-lymph. Sir R. Thorne Thorne advocated the use altogether of calf vaccine so far as England and Wales were concerned. Sir R. Thorne Thorne's conclusion was, "that it is desirable that vaccine, both primary and secondary, should be performed exclusively with vaccine lymph derived from calves." So far as Ireland was concerned Dr. Horne did not think that there was any objection to the use of humanised lymph, and experience simply bore out the fact that arm-to-arm vaccination was the most efficient form of vaccination. Bacteriologists had not really been able to solve the question as to what animal or humanised vaccine really was.

Surgeon-General Potter had, during the small-pox scare, vaccinated himself, the members of his family, and servants in the house with calf-lymph. It was carried out three times with no result. Perhaps this was due to immunity from vaccination performed a short time previously. He had found arm-to-arm vaccination extremely successful when in India.

Dr. Denham, in reply, threw another photograph on the screen to illustrate that the more glycerine there is the less microbes there are. He exhibited a tube containing material from which he thought it absolutely impossible to cultivate any noxious microbes. He believed that the phagocytes in children were extremely powerful, and destroyed the staphylococci which he had exhibited. He thought that great credit was due to Dr. Purcell in using glycerine for preserving lymph so long ago. He insisted on the complete absence of antiseptics in vaccination; pure asepsis was only to be used. Personally he had never had any bad results from primary vaccination.

The Section then adjourned.

# SANITARY AND METEOROLOGICAL NOTES.

Compiled by J. W. Moore, B.A., M.D., Univ. Dubl.;
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## Vital Statistics

*For four weeks ending Saturday, March* 26, 1898.

The deaths registered in each of the four weeks in the twenty-three principal Town Districts of Ireland, alphabetically arranged, corresponded to the following annual rates per 1,000 :—

| Towns | Weeks ending | | | | Towns | Weeks ending | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Mar. 5 | Mar. 12 | Mar. 19 | Mar. 26 | | Mar. 5 | Mar. 12 | Mar. 19 | Mar. 26 |
| 23 Town Districts | 28·7 | 32·5 | 29·3 | 26·9 | Limerick - | 32·3 | 29·5 | 18·2 | 14·0 |
| Armagh - | 28·5 | 7·1 | 28·5 | 21·4 | Lisburn - | 38·3 | 42·6 | 42·6 | 8·5 |
| Ballymena | 16·9 | 33·8 | 22·5 | 33·8 | Londonderry | 20·4 | 25·1 | 17·3 | 34·6 |
| Belfast - | 27·4 | 34·7 | 28·2 | 24·6 | Lurgan - | 36·5 | 9·1 | 27·4 | 18·2 |
| Carrickfergus | 17·5 | 5·8 | 29·2 | 40·9 | Newry - | 28·2 | 44·3 | 44·3 | 12·1 |
| Clonmel - | 24·3 | 58·4 | 34·1 | 0·0 | Newtownards | 23·3 | 17·0 | 39·7 | 17·0 |
| Cork - | 22·1 | 20·1 | 18·7 | 28·4 | Portadown | 24·7 | 49·5 | 49·5 | 18·6 |
| Drogheda - | 19·0 | 19·0 | 30·4 | 11·4 | Queenstown | 17·2 | 11·5 | 11·5 | 23·0 |
| Dublin - | 31·6 | 35·6 | 34·6 | 28·6 | Sligo - | 15·2 | 50·8 | 15·2 | 25·4 |
| Dundalk - | 20·9 | 25·1 | 12·6 | 41·9 | Tralee - | 22·4 | 0·0 | 50·4 | 50·4 |
| Galway - | 49·1 | 26·4 | 15·1 | 45·3 | Waterford | 37·8 | 27·9 | 23·9 | 43·8 |
| Kilkenny - | 23·6 | 61·4 | 42·5 | 37·8 | Wexford - | 45·2 | 45·2 | 31·6 | 31·6 |

In the week ending Saturday, March 5, 1898, the mortality in thirty-three large English towns, including London (in which the rate was 20·9), was equal to an average annual death-rate of 20·7 per 1,000 persons living. The average rate for eight principal towns of Scotland was 21·8 per 1,000. In Glasgow the rate was 24·3. In Edinburgh it was 19·7.

The average annual death-rate represented by the deaths registered during the week in the twenty-three principal town districts of Ireland was 28·7 per 1,000 of their aggregate population, which, for the purpose of this return, is estimated at 1,007,798.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·4 per 1,000, the rates varying from 0·0 in sixteen of the districts to 8·5 in Lisburn—the 9 deaths from all causes registered in that district comprising 1 from diphtheria and 1 from enteric fever. Among the 160 deaths from all causes registered in Belfast are 1 from measles, 1 from scarlatina, 3 from whooping-cough, 4 from diphtheria, 13 from enteric fever, and 3 from diarrhœa. Three of the 5 deaths from all causes in Dundalk and 2 of the 19 deaths in Waterford were from influenza. The Registrar of the former district remarks—"Influenza is most prevalent for the past month."

In the Dublin Registration District the registered births amounted to 221—116 boys and 105 girls; and the registered deaths to 218—105 males and 113 females.

The deaths, which are 7 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 32·5 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 31·6 per 1,000. During the first nine weeks of the current year the death-rate averaged 31·6, and was 1·5 under the mean rate in the corresponding period of the ten years 1888–1897.

The number of deaths from zymotic diseases registered was 27, being equal to the number for the preceding week, and one under the average for the 9th week of the last ten years. The 27 deaths comprise 5 from scarlet fever (scarlatina), 7 from influenza and its complications, 2 from whooping-cough, 7 from enteric fever, 2 from diarrhœa, and 1 from erysipelas.

The weekly number of cases of scarlatina admitted to hospital, which had fallen from 28 in the week ended February 12 to 22 in the following week, and 13 in the week ended February 26, rose to 29. Nineteen scarlatina patients were discharged, 3 died, and 160 remained under treatment on Saturday, being 7 over the number in hospital at the close of the preceding week. This number does not include 20 patients who were under treatment at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital.

The number of cases of enteric fever admitted to hospital was 24, being 8 under the admissions in the preceding week, but 8 over the number for the week ended February 19. Nineteen patients

were discharged, 2 died, and 127 remained under treatment on Saturday, being 3 over the number in hospital on that day week.

Diseases of the respiratory system caused 55 deaths, being 5 in excess of the average for the corresponding week of the last ten years, and 4 over the number for the previous week. The 55 deaths comprise 44 from bronchitis and 10 from pneumonia.

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In the week ending Saturday, March 12, the mortality in thirty-three large English towns, including London (in which the rate was 21·5), was equal to an average annual death-rate of 21·1 per 1,000 persons living. The average rate for eight principal towns of Scotland was 25·0 per 1,000. In Glasgow the rate was 26·9, and in Edinburgh it was 23·9.

The average annual death-rate in the twenty-three principal town districts of Ireland was 32·5 per 1,000 of their aggregate population.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·4 per 1,000, the rates varying from 0·0 in seventeen of the districts to 9·7 in Clonmel—the 12 deaths from all causes registered in that district comprising 2 from diarrhœa. Among the 203 deaths from all causes registered in Belfast are 2 from whooping-cough, 2 from diphtheria, 2 from simple continued fever, 15 from enteric fever, and 2 from diarrhœa. The 29 deaths in Cork comprise 3 from measles. The Registrar for Tralee No. 2 District remarks—"Several cases of fever occurred in different parts of the district."

In the Dublin Registration District the registered births amounted to 206—97 boys and 109 girls; and the registered deaths to 250—121 males and 129 females.

The deaths, which are 31 over the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 37·3 in every 1,000 of the population. Omitting the deaths (numbering 11) of persons admitted into public institutions from localities outside the district, the rate was 35·6 per 1,000. During the first ten weeks of the current year the death-rate averaged 32·2, and was 0·9 under the mean rate in the corresponding period of the ten years 1888–1897.

Thirty-one deaths from zymotic diseases were registered, being 4 in excess of the average for the corresponding week of the last ten years, and, also, 4 over the number for the previous week. They comprise 6 from scarlet fever (scarlatina), 11 from influenza

and its complications, 3 from whooping-cough, 1 from diphtheria, 5 from enteric fever, and 1 from diarrhœa.

The number of cases of scarlatina admitted to hospital was 22, being 7 under the admissions in the preceding week. Seventeen scarlatina patients were discharged, 2 died, and 163 remained under treatment on Saturday, being 3 over the number in hospital on that day week. There were, in addition, 20 convalescents at Beneavin, Glasnevin.

The weekly number of cases of enteric fever admitted to hospital fell to 20. Sixteen patients were discharged, 6 died, and 125 remained under treatment on Saturday, being 2 under the number in hospital at the close of the preceding week.

Deaths from diseases of the respiratory system, which had risen from 41 for the week ended February 19 to 55 for the week ended March 5, further rose to 61, or 7 over the average for the corresponding week of the last ten years. The 61 deaths consist of 46 from bronchitis, 14 from pneumonia, and 1 from pleurisy.

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In the week ending Saturday, March 19, the mortality in thirty-three large English towns, including London (in which the rate was 21·6), was equal to an average annual death-rate of 21·8 per 1,000 persons living. The average rate for eight principal towns of Scotland was 24·1 per 1,000. In Glasgow the rate was 26·4, and in Edinburgh it was 23·0.

The average annual death-rate in the twenty-three principal town districts of Ireland was 29·3 per 1,000 of the population.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·5 per 1,000, the rates varying from 0·0 in seventeen of the districts to 16·8 in Tralee—the 9 deaths from all causes registered in that district comprising 1 from typhus and 2 from whooping-cough. Among the 165 deaths from all causes registered in Belfast are 1 from measles, 2 from whooping-cough, 3 from diphtheria, 1 from simple continued fever, 10 from enteric fever, and 2 from diarrhœa. The 11 deaths in Londonderry comprise 1 from typhus, 5 from whooping-cough, and 1 from diarrhœa. The Registrar for Tralee No. 2 District remarks—"Several cases of enteric fever were sent to hospital during the week."

In the Dublin Registration District the registered births amounted to 210—117 boys and 93 girls; and the registered deaths to 237—109 males and 128 females.

The deaths, which are 27 over the average number for the cor-

responding week of the last ten years, represent an annual rate of mortality of 35·3 in every 1,000 of the population. Omitting the deaths (numbering 5) of persons admitted into public institutions from localities outside the district, the rate was 34·6 per 1,000. During the first eleven weeks of the current year the death-rate averaged 32·5, and was 0·4 under the mean rate in the corresponding period of the ten years 1888–1897.

The number of deaths from zymotic diseases registered was 30, being 2 over the average for the corresponding week of the last ten years, but 1 under the number for the previous week. The 30 deaths comprise 4 from scarlet fever (scarlatina), 11 from influenza and its complications, 3 from whooping-cough, 1 from diphtheria, 7 from enteric fever, 2 from diarrhœa, and 1 from erysipelas.

Twenty-three cases of scarlatina were admitted to hospital, being 1 over the admissions in the preceding week, but 6 under the number for the week ended March 5. Thirty-two scarlatina patients were discharged, and 154 remained under treatment on Saturday, being 9 under the number in hospital at the close of the preceding week. There were, in addition, 18 convalescents at Beneavin, Glasnevin.

The decline in the number of cases of enteric fever admitted to hospital, noted in the returns for the two weeks preceding, continued, the admissions being 14 only. Twenty-four patients were discharged, 3 died, and 112 remained under treatment on Saturday, being 13 under the number in hospital at the close of the preceding week.

Deaths from diseases of the respiratory system fell to 42, or 7 under the average for the corresponding week of the last ten years. The 42 deaths consist of 35 from bronchitis and 7 from pneumonia.

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In the week ending Saturday, March 26, the mortality in thirty-three large English towns, including London (in which the rate was 20·0), was equal to an average annual death-rate of 20·2 per 1,000 persons living. The average rate for eight principal towns of Scotland was 22·9 per 1,000. In Glasgow the rate was 25·1 per 1,000, and in Edinburgh it was 23·4.

The average annual death-rate represented by the deaths registered in the twenty-three principal town districts of Ireland was 26·9 per 1,000 of the population.

The deaths from the principal zymotic diseases in the twenty-three districts were equal to an annual rate of 2·0 per 1,000, the rates varying from 0·0 in seventeen of the districts to 11·2 in Tralee—the 9 deaths from all causes registered in that district

comprising 2 from whooping-cough. Among the 144 deaths from all causes registered in Belfast are 3 from whooping-cough, 1 from diphtheria, 8 from enteric fever, and 2 from diarrhœa. The 41 deaths in Cork comprise 1 from typhus, 1 from whooping-cough, 1 from diphtheria, and 4 from enteric fever. The 22 deaths in Londonderry comprise 2 from whooping-cough and 1 from diphtheria.

In the Dublin Registration District the registered births amounted to 197—113 boys and 84 girls; and the registered deaths to 198—79 males and 119 females.

The deaths, which are 16 under the average number for the corresponding week of the last ten years, represent an annual rate of mortality of 29·5 in every 1,000 of the population. Omitting the deaths (numbering 6) of persons admitted into public institutions from localities outside the district, the rate was 28·6 per 1,000. During the first twelve weeks of the current year the death-rate averaged 32·2, and was 0·6 under the mean rate in the corresponding period of the ten years 1888–1897.

The deaths from zymotic diseases, which had been 31 and 30 in the two preceding weeks, fell to 22, or 6 under the average for the corresponding week of the last ten years. The 22 deaths comprise 2 from scarlet fever (scarlatina), 9 from influenza and its complications, 3 from whooping-cough, 6 from enteric fever, and 1 from choleraic diarrhœa.

Twenty-four cases of scarlatina were admitted to hospital against 23 in the preceding week and 22 in the week ended March 12. Twenty-two scarlatina patients were discharged, 1 died, and 155 remained under treatment on Saturday, being 1 over the number in hospital on that day week. There were, besides, 10 convalescents at Beneavin, Glasnevin.

The weekly number of cases of enteric fever admitted to hospital rose to 21. Twenty patients were discharged, 2 died, and 111 remained under treatment on Saturday, being 1 under the number in hospital at the close of the preceding week.

The number of deaths from diseases of the respiratory system registered was 38, being 13 below the average for the corresponding week of the last ten years. The 38 deaths consist of 26 from bronchitis and 12 from pneumonia.

## Meteorology.

*Abstract of Observations made in the City of Dublin, Lat. 53° 20′ N., Long. 6° 15′ W., for the Month of March*, 1898.

| | |
|---|---|
| Mean Height of Barometer, - - - | 29·969 inches. |
| Maximal Height of Barometer (25th, 9 a.m.), - | 30·339 ,, |
| Minimal Height of Barometer (29th, 9 p.m.), - | 29·428 ,, |
| Mean Dry-bulb Temperature, - - | 41·4° |
| Mean Wet-bulb Temperature, - - | 39·0°. |
| Mean Dew-point Temperature, - - | 36·0°. |
| Mean Elastic Force (Tension) of Aqueous Vapour, | ·214 inch. |
| Mean Humidity, - - - | 82·0 per cent. |
| Highest Temperature in Shade (on 18th), - | 59·3°. |
| Lowest Temperature in Shade (on 5th), - | 30·8°. |
| Lowest Temperature on Grass (Radiation) (on 5th), - - - - - | 28·5°. |
| Mean Amount of Cloud, - - - | 54·1 per cent. |
| Rainfall (on 16 days), - - - | 1·041 inches. |
| Greatest Daily Rainfall (on 27th), - - | ·231 inch. |
| General Directions of Wind, - | W., N.E., N.W. |

*Remarks.*

March proved the coldest month of the winter of 1897–98. Nevertheless, its mean temperature was only fractionally below the average—0·4°. This result was brought about by the occurrence of a warm spell from the 15th to the 19th, inclusive. After the 23rd very cold weather held to the end of the month, a bitter N.E. gale blowing on the 24th and 25th. Snow or sleet fell in Dublin on 9 days, hail on 8 days.

In Dublin the arithmetical mean temperature (42·7°) was somewhat below the average (43·1°); the mean dry-bulb readings at 9 a.m. and 9 p.m. were 41·4°. In the thirty-two years ending with 1897, March was coldest in 1867 and 1883 (M. T.=39·0°), and warmest in 1893 (M. T.=48·1°), and in 1868 (M. T.=47·3°).

The mean height of the barometer was 29·969 inches, or 0·053 inch above the corrected average value for March—namely, 29·916 inches. The mercury rose to 30·339 inches at 9 a.m. of the 25th, and fell to 29·428 inches at 9 p.m. of the 29th. The observed range of atmospheric pressure was, therefore, 0·911 inch.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was 41·4°. Using the formula, *Mean Temp.* = *Min.* + (*max.* − *min.* × ·485), the M. T. becomes

42·5°. The arithmetical mean of the maximal and minimal readings was 42·7°, compared with a twenty-five years' average of 43·1°. On the 18th the thermometer in the screen rose to 59·3°—wind, W.S.W.; on the 5th the temperature fell to 30·8°—wind, W.S.W. The minimum on the grass was 28·5°, also on the 5th.

The rainfall was 1·041 inches, distributed over 16 days. The average rainfall for March in the twenty-five years, 1865–89, inclusive, was 2·061 inches, and the average number of rainy days was 16·5. The rainfall, therefore, and also the rainy days, were below the average. In 1867 the rainfall in March was very large—4·972 inches on 22 days. On the other hand, the smallest March rainfall was ·288 inch on 8 days in 1893.

The atmosphere was more or less foggy in the city on 5 days—viz., the 7th, 8th, 11th, 30th, and 31st. High winds were noted on 11 days, reaching the force of a gale on two occasions—the 24th and 25th. Snow or sleet occurred on the 1st, 2nd, 5th, 7th, 24th, 25th, 26th, 27th, and 28th; and hail fell on the 1st, 4th, 7th, 24th, 25th, 26th, 27th, and 28th. The temperature exceeded 50° in the screen on 9 days, compared with 14 days in 1897, 21 in 1896, 13 in 1895, 22 in 1894, 26 in 1893, only 7 in 1892, 9 in 1891, and 19 in 1890. It fell to or below 32° in the screen on five occasions. The minima on the grass were 32°, or less, on 15 nights, compared with 9 nights in 1897, 8 in 1896, 10 in 1895, 12 each in 1894 and 1893, 25 in 1892, 20 in 1891, and 16 in 1890. The thermometer never rose to 60° in the screen, and never failed to reach 40°. A solar halo was seen on the 22nd. Lunar halos appeared on the 1st and 3rd. There was a brilliant aurora borealis on the evening of the 15th.

A continuance of cold and winterly weather signalised the period ended Saturday, the 5th. Prior to Thursday a depression of some depth travelled gradually south-eastwards to Central Europe from the Norwegian Sea. It brought to the British Isles fresh to strong westerly and afterwards northerly winds and cold showers. Hail, sleet and snow became prevalent on and after Tuesday, the 1st, and thunder and lightning were reported from various stations—from Holyhead on Wednesday, and Scilly and Prawle Point on Thursday. In the course of the last-named day a secondary depression formed over the S.W. of England, and subsequently travelled southwards to the S.W. of France. This system caused falls of cold rain and wet snow in the S. of England and parts of France—the heaviest downpour being in London (·35 inch). On Thursday and Friday the eastern quadrant of an anticyclone spread over Ireland from the Atlantic, and northerly winds and

cold weather prevailed. On Saturday the barometer fell steadily as a new depression approached from the N.W. This system caused a shift of wind to S.W. and S., clouds and a fall of wet snow in the afternoon. In Dublin the barometer fell to 29·658 inches at 9 p.m. of Saturday (wind, W.), after having risen to 30·061 inches at 9 p.m. of Friday (wind, N.). On Wednesday the screened thermometers rose to 46·6°, on Saturday they fell to 30·8°. The rainfall was ·164 inch on four days, ·094 inch being measured on Tuesday. Hail fell on Tuesday and Friday, snow or sleet on Tuesday, Wednesday, and Saturday.

The cold weather drew to a close in Ireland on Thursday, the 10th, and the last three days of the week ended Saturday, the 12th, were comparatively genial. In England, however, sharp night frosts were felt at the inland stations almost to the end of the week—a minimum of 23° in the shade being recorded at Loughborough on Friday morning. On Sunday a depression passed southwards across Ireland, where cold showers were prevalent. Sleet and soft hail fell on Monday morning, but the day finally proved brilliant, although the air was very keen. At 8 a.m. of Tuesday the barometer stood as high as 31·14 inches at Moscow. A band of high atmospheric pressure now moved southwards across the British Islands, so that quiet, calm, cold weather prevailed. As the ridge of high pressure passed by, westerly winds sprang up, accompanied by cloudy skies and a much higher temperature. This change first affected the North of Ireland and Scotland, and later on extended to the South of Ireland and parts of England. On Saturday there were a few light showers. In Dublin the mean height of the barometer was 30·129 inches, pressure ranging between 29·653 inches at 9 a.m. of Sunday (wind, W.N.W.) and 30·305 inches at 9 a.m. of Thursday (wind, N.W.). The corrected mean temperature was 42·0°. The mean dry-bulb reading at 9 a.m. and 9 p.m. was 40·7°. The screened thermometers fell to 31·1° on Tuesday and rose to 53·5° on Friday. Rain fell in measurable amount on two days, the total fall being ·044 inch, of which ·033 inch was registered on Sunday. North-westerly winds predominated.

The westerly type of weather held throughout the week ended Saturday, the 19th, which was much milder and also duller than its immediate predecessors. The barometer ruled low to the northward of Scotland, while it was relatively high over the Bay of Biscay, France, and the southern parts of the British Isles. On Sunday night a subsidiary depression passed eastwards across Ireland. On Tuesday morning another and deeper depression arrived off the Hebrides, causing squally weather and some rain-

fall. On the evening of this day brilliant aurora borealis was seen in the British Islands and Denmark. The next three days were cloudy, mild, and squally—the wind being S.W. or W. in direction. Very little rain fell except in the far North. Finally, on Friday night a V.-shaped or angular depression caused broken weather for the time being. Saturday was much cooler and fine throughout—the upper clouds still travelling from W.S.W., while the lower clouds and wind came from N. In Dublin the mean height of the barometer was 29·926 inches, pressure ranging between 29·705 inches at 9 p.m. of Friday (wind, W.S.W.), and 30·121 inches at 9 p.m. of Saturday (wind, N.). The corrected mean temperature was 48·3°. The mean dry bulb reading at 9 a.m. and 9 p.m. was 47·4°. On Friday the screened thermometers rose to 59·3°, having fallen to 35·7° on Sunday. The rainfall was ·180 inch on three days, ·156 inch being measured on Friday. The prevailing wind was W.S.W. The aurora borealis on Tuesday evening was a very splendid display.

Cold throughout the week ended Saturday, the 26th, the weather became extremely severe and inclement on Wednesday, and so continued to the end of the period. During the first three days an anticyclone lay over the British Islands, the weather was fine and quiet, and the diurnal range of temperature was very large, sharp night frosts being followed by spells of warm sunshine by day. At Cambridge the thermometer rose to 51° in the shade on Sunday and to 54° on Monday, the night minima being 25° and 26° respectively. On Tuesday the barometer fell in Scotland and Ireland, and the wind shifted to S.W., as a depression advanced to our neighbourhood from the northward. By 8 a.m. of Wednesday the centre of this system had reached the Wash, whence it travelled to central Europe, growing deeper as it moved. Simultaneously the barometer rose quickly in the N., N.W., and W., with the result that baric gradients became very steep for northerly and north-easterly winds. Strong gales and blinding showers of hail, sleet and snow were reported during the last three days of the week from all exposed points on the British coasts, the S.E. of England suffering most severely. Ireland for the most part escaped the blizzard, but the east coast from Dublin southwards felt the fury of the gale and was swept by snow and hail squalls from time to time. A fresh decrease of pressure began on Friday, continuing to the end of the week. In Dublin the mean atmospheric pressure was 30·169 inches, the barometer ranging between 30·339 inches at 9 a.m. of Friday (wind, N.E.) and 29·823 inches at 9 p.m. of Saturday (wind also N.E.). The corrected mean

temperature was 41·5°. The mean dry-bulb reading at 9 a.m. and 9 p.m. was 41·0°. On Wednesday the screened thermometers rose to 52·8°; on Monday they fell to 31·9°. The prevailing winds were N.W. and N.E. The rainfall was ·132 inch on three days, ·101 inch being measured on Saturday. The precipitation was chiefly in the form of snow, sleet and hail.

Although still cold for the time of year, the weather moderated in the closing period of the month (27th–31st). On Sunday, the 27th, a large and rather deep depression still lay over France and Germany, while an anticyclone was found covering the Gulf of Bothnia. At 8 a.m. the barometer was as low as 29·30 inches in France, whereas it stood at 30·61 inches at Hernosand in Sweden. Strong N.E. winds, dull, cold weather, and rain, hail, and sleet were prevalent in most parts of the British Islands. The west and south of Ireland, however, enjoyed fine weather. Late on Tuesday night cold rain, sleet and hail fell heavily in Dublin. Gradients became much less steep after Sunday, so that the N.E. winds died down—on Tuesday, indeed, there was a light S.W. breeze for a time. Rain continued to fall in and near Dublin until the afternoon of the 30th, when a dry spell set in. The rainfall was ·521 inch. The barometer ranged from 29·428 inches at 9 p.m. of Tuesday, the 29th (wind, W.), to 29·916 inches at 9 p.m. of Thursday, the 31st (wind, calm). The extremes of temperature both occurred on the latter day—the maximum being 47·6°, the minimum 34·1°. Northeasterly winds prevailed.

The rainfall in Dublin during the three months ending March 31st amounted to 4·570 inches on 48 days, compared with 7·069 inches on 57 days in 1897, 4·898 inches on 47 days in 1896, 9·084 inches on 52 days in 1895, 6·028 inches on 53 days in 1894, 5·196 inches on 49 days in 1893, 4·808 inches on 48 days in 1892, only 1·650 inches on but 32 days in 1891, 7·470 inches on 45 days in 1890, and a twenty-five years' average of 6·411 inches on 51·0 days (1865–1889, inclusive).

At Knockdolian, Greystones, Co. Wicklow, only ·765 inch of rain fell on 12 days during March; and the total rainfall since January 1, 1898, equals 4·745 inches on 41 days. The corresponding figures for 1897 are 3·755 inches on 24 days, the total rainfall since January 1 having been 8·945 inches on 61 days. The maximal fall in 24 hours was ·180 inch on the 26th.

The rainfall in March at Cloneevin, Killiney, Co. Dublin, was 1·29 inches on 15 days, compared with 3·28 inches on 23 days in 1897, 2·61 inches on 23 days in 1896. 3·29 inches on 21 days in 1895, 1·11 inches on 14 days in 1894, ·26 inch on 9 days in 1893,

·98 inch on 10 days in 1892, and a twelve years' (1885–96) average of 1·873 inches on 15·2 days. The maximum in the 12 years was 3·59 inches in 1888, the minimum was ·26 in 1893. At this station the total rainfall since January 1 was 4·61 inches on 44 days, compared with a fall of 7·59 inches on 61 days in the first quarter of 1897. On the 28th, ·23 inch fell.

At the National Hospital for Consumption, Newcastle, Co. Wicklow, the rainfall in March was ·844 inch on 13 days, compared with 4·490 inches on 23 days in 1897, ·148 inch being registered on the 6th. The highest shade temperature at this climatological station was 59·0° on the 18th, the lowest was 31·2° on the 9th. Since January 1st, 4·767 inches of rain had fallen at the hospital on 40 days, compared with 10·086 inches on 57 days in the first quarter of 1897.

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### CONDITIONS SIMULATING HERNIA.

M. Walther (*Gazette des Hôpitaux*) reports from the practice of M. Latouche, of Auton, three cases which were admitted to hospital as suffering from hernia, with symptoms so acute that immediate operation was deemed necessary. In the first case acute tuberculous peritonitis was found; in the second case, general peritonitis, cause unknown; and in the third, a myosarcoma, with peritonitis.

### LITERARY NOTE.

The Rebman Publishing Company announce the following new books as just ready, viz.:—"Tuberculosis of the Genito-Urinary Organs, Male and Female," by Professor N. Senn. "Orthopædic Surgery," by Dr. James E. Moore, and "Pathological Technique." A Practical Manual for the Pathological Laboratory, by Drs. F. B. Mellory and J. H. Wright. The Rebman Publishing Company also announce, conjointly with Mr. W. B. Saunders, of Philadelphia, that arrangements have been completed for the publication of an edition in English of the world-famed "Lehmann's Medicinische Handatlanten" (Medical Reference Atlases). Each volume will contain from fifty to one hundred coloured plates, besides numerous other illustrations in the text. The first volume, to appear almost immediately, will be an Atlas of Internal Medicine and Clinical Diagnosis, by Dr. Chr. Jakob, of Erlangan, edited by Professor A. A. Eshner, of Philadelphia. Others in active preparation are Atlases of "Legal Medicine," "Operative Surgery," "Laryngology," and "External Diseases of the Eye."

# PERISCOPE.

## CONDITIONS SIMULATING APPENDICITIS.

At a meeting of the Surgical Society of Paris, on the 19th of January last, M. Puffier reported (*Gazette des Hôpitaux*) a case of perforating ulcer of the duodenum occurring in a young man who was engaged in lifting a heavy weight of coffee. The symptoms so closely resembled those of appendicitis that a laparotomy was performed. On examination of the appendix it was found to be quite healthy. A *post-mortem* examination revealed the lesion in the second portion of the duodenum, the walls of which were very thin.

At the same meeting M. Michaux reported the case of a young woman who was admitted to hospital suffering from acute peritonitis. On the fifth day all the symptoms suddenly became greatly aggravated, and a perforation of the appendix was diagnosticated. M. Michaux performed a laparotomy, but failed to find the exciting cause of the peritonitis. A few days afterwards the patient died, and a small perforated ulcer of the duodenum was found. This was the second case of a perforating ulcer of the duodenum met with by M. Michaux.

## ULCERS OF THE STOMACH.

In a paper contributed to the *Gazette des Hôpitaux*, M. Chaput writes:—

"I have operated on five patients who were suffering from gastric ulcer.

"The first had an epigastric tumour which was considered to be cancerous. The operation was unsuccessful, and, on making the autopsy, an abscess was found lying in front of the pancreas and communicating with the interior of the stomach.

"The second patient had also an epigastric tumour, together with the usual symptoms of gastric ulcer. Gastro-enterotomy was performed, and after two years the patient remains well.

"In the third case the patient suffered for fourteen years from gastric ulcer. She had an epigastric tumour, vomiting, violent gastric pains, and acute pyrexia. Gastro-enterotomy was performed. The vomiting persisted, and on the third day from the operation the supplementary operation—entero-anastomosis—was performed, and the patient made a good recovery.

"The fourth patient was diagnosticated by a specialist as suffering

from gastric ulcer; the analysis of the gastric juice favoured the diagnosis. The patient some months afterwards presented a slow-growing, well-defined epigastric tumour. Gastro-enterotomy was performed successfully; death, however, resulted not long after. From the symptoms it is very probable that the gastric ulcer underwent cancerous degeneration.

"The fifth patient presented no signs other than those of pyloric narrowing. On opening the abdomen a small pyloric tumour was found, for which a pylorectomy was done. The patient is quite well, and digests his food without trouble two years after the operation. A histological examination of a section of the tumour reveals a cancerous kernel, surrounded with hypertrophied muscle-tissue.

"The author concludes that an epigastric tumour is not pathognomonic of carcinoma, and that hydrochloric acid may be found in the gastric juice in the early stage of cancer."

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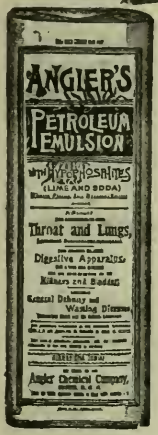


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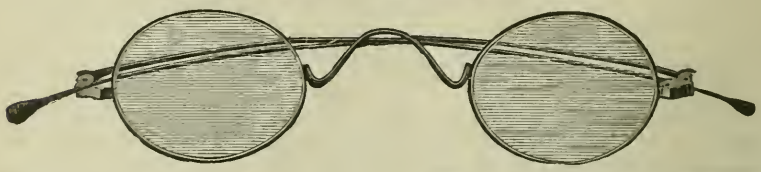

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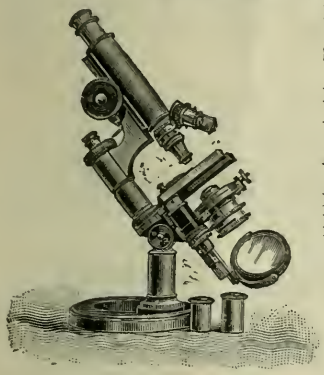

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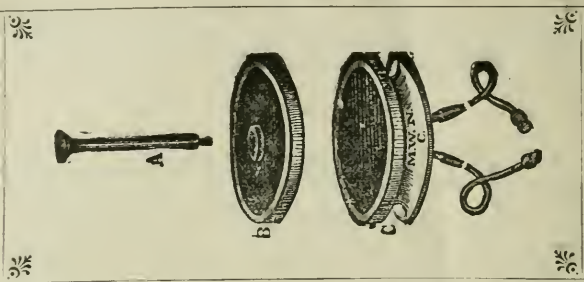


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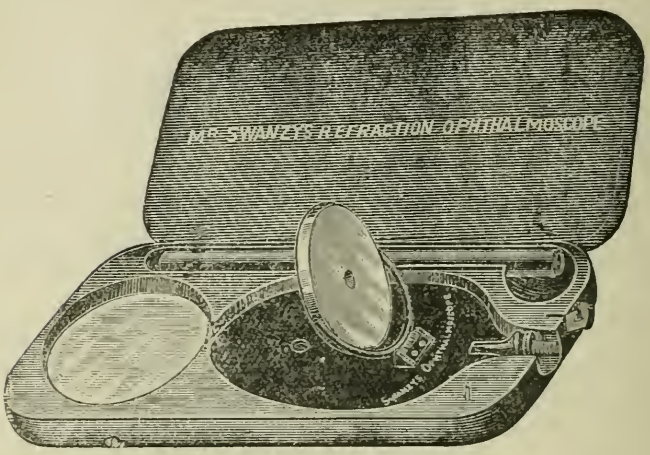


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**First Order of Merit and Medal**, Melbourne, 1888.

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*The following extracts from the Medical Journals, &c., sufficiently indicate its high character, and the estimation in which it is held alike by the Medical Profession and by the Public:—*

**The LANCET of March 25th, 1882, says:—**

"We have on a previous occasion noticed some of Mr. Benger's admirable preparations. Those now before us are not less satisfactory."

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"Benger's Food is a preparation devised on original lines, and which we can speak of in the highest terms. . . . Infants do remarkably well on it, and it is most suitable for many conditions in adults and old people. Amongst other things, we may mention that this food has been found extremely useful in the Summer Diarrhœa met with in some of our Colonies, where the distaste for food and difficulty of digestion are very marked. There is certainly a great future before it."

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